Commerce Today

July 7, 1975 • BICENTENNIAL ISSUE

FROM THE SECRETARY

Facing America's Third Century

With this Bicentennial issue of *Commerce Today*, the Department of Commerce takes the opportunity to assess what business has meant to America during its first 200 years as a nation, and the part that Commerce has played.

On the basis of performance in the first 200 years, America's third century can be exhilarating.

There is a distinctive genius to the American system: that we always devise a uniquely American approach to potential crises, and "do something" about them.

We "did something" about it three months before the Declaration of Independence was signed. On April 6, 1776, the Continental Congress legislated economic independence for the American colonies when it ended their mercantile dependence upon Great Britain. With that act, as John Adams felt, the Declaration—accusing the King of "cutting off our trade with all parts of the world"—was inevitable.

In Britain, that same spring of 1776, Adam Smith published his landmark work, "An Inquiry Into the Nature and Causes of the Wealth of Nations," which likewise signalled an end to the mercantilist system of colonial monopolies. Smith believed that economic health arose from *free trade, little government intervention,* and *the exercise of self-interest by reasonable men engaged in the profitable use of capital.*

The Declaration of Independence asserted the right of Americans to live by those principles. And this most noble of all human experiments has proved its validity for these 200 years.

There is no cause for any of us, then, to lose faith in the system that has served so well for so long, nor to let ourselves be panicked into compromising our precious economic freedoms because we are faced with tough decisions. Let us rather, as we embark upon our third century of this glorious adventure, face those challenges squarely, and—as we have always done—build better upon what has gone before.

Four years before America's great Centennial celebration, Horace Greeley evaluated the nation's technological achievements to that time, and predicted: "We have seen only the beginning."

Our beginning of two centuries has been full of promise. It remains for all of us now to get on with our great national enterprise—to project a *new* vision of the future: a vision of a Second America full of possibilities still to be realized. It does not mean an easier life, but rather calls for a strong national will, courage and hope.

But courage and hope are foundation stones upon which the first America was built 200 years ago. The building of a second and greater America demands no less from each of us.

Let us get on with this great and exciting work!

Rogers C.B. Morton

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Regular Commerce Today *features such as Industry Highlights, Official Trade Briefs and Worldwide Business Opportunities follow the Bicentennial Section.*

COVER: *During the course of the nation's first two centuries, Commerce agencies have played a vital role in helping to advance the free enterprise system under which American business has prospered. This special issue of* Commerce Today *is devoted to telling the stories of some of the men and events which shaped the nation as it prepares to celebrate its Bicentennial Year.*

Photos on pages 2, 4, 5 and 29 are courtesy of the American Cyanamid Company, Bound Brook, N.J.

Commerce Today
Vol. V, No. 20
July 7, 1975

Business Leaders Who Helped Build America Remain Largely Unknown

In the future as in the past, the genius that has built America's unequalled industrial and business establishment will be at work, seeking and achieving new breakthroughs, attacking and mastering new challenges, finding new ways to solve problems, and developing new and better products.

This has been the story of American business from the beginning. The story is a procession of miracles of invention and development that has led the nation from a rural community of four million people to the present 214 million, and is now supplying its population with a standard of living unparalleled in history.

And the untiring genius still moves on, in boom and bad times, unceasing in its effort to provide a tomorrow better than today. Its central and unvarying quality has been a spirit of "never say die." In thousands of ways, in laboratories, shops, and offices, it is pressing forward, and the result is the technological progress that still marches on after two centuries.

Today there are thousands of Benjamin Franklins in the effort, men and women with something of his inventive genius if not his vast versatility and range of mind. Most of them are not known and probably will never be known to the public that will benefit from what they do. They are at work on scores of projects, trying to solve various aspects of the energy problem, to achieve productivity gains, and to build better mousetraps in thousands of designs.

The success stories of American business have not been all sunshine. Frequently they are achieved only after a discouraging series of failures. It has been a process of trial and error, of imitating the frog that climbed almost to the top of the well only to fall halfway or all the way back again, only to start all over again. The entrepreneur and inventor often have persisted in faith in their ideas after all others had lost hope.

Often they have been spurred on by the lure of profits. But not always. Sometimes at the outset there has been no tangible prospect of profits at all, possibly the contrary. But there has been a challenge, a problem to be licked, a hope to be achieved, an unfortunate condition to be overcome. At times, the effort was made because of a tragic episode, a disagreeable experience, or merely a bright idea. Occasionally, the mountain was climbed, not because it was there, but because it had to be.

EASY DOES IT—*Everything is simple, once it's been thought up. Here, Elisha Otis demonstrates the first practical elevator to an enthusiastic crowd at New York's first world fair, in the Crystal Palace, in 1854. A simple braking device solved the problem.*

Worldwide benefits

The triumphs of American business have carried the United States safely through two world wars, and provided much of the means of rebuilding afterward. More than that, they have often provided patterns for development in other lands, and have extended benefits to the entire earth, both the developed and undeveloped portions.

Yet the authors of these triumphs are to a large extent unknown in modern America. Their names are not household words, except perhaps indirectly in advertisements, and are not on schoolchildren's lips. However, these creators of American affluence have had the rare advantage of unrivaled freedom to dare, strive, and do, the privilege of free and competitive markets which have been their own discipline, rewarding those who met their conditions and punishing those

who did not. Often the corporation, which has achieved its most extensive development in America, has been the instrument to amass the necessary capital to make a go of fledgling projects and build them into giants, as has often happened. The corporations have attracted capital, not only from financial institutions, but from millions of small savers, producing to a large degree a "people's capitalism."

The overall result, despite the criticism often leveled at the American free enterprise system, is an economy which has long been the most productive in human history, and is now turning out as many goods and services as the Soviet Union, France, West Germany, and the United Kingdom combined.

In an introduction to the book entitled "Pioneers of American Business," Sterling G. Slappey, senior editor of *Nation's Business*, comments that the history of American business and the lives of outstanding American businessmen are little known, "not only by the general public but by other American businessmen and even professors in our business schools."

Who were they?

He says a person could walk into the best graduate business school in the country and fail to get correct answers to such questions as these:

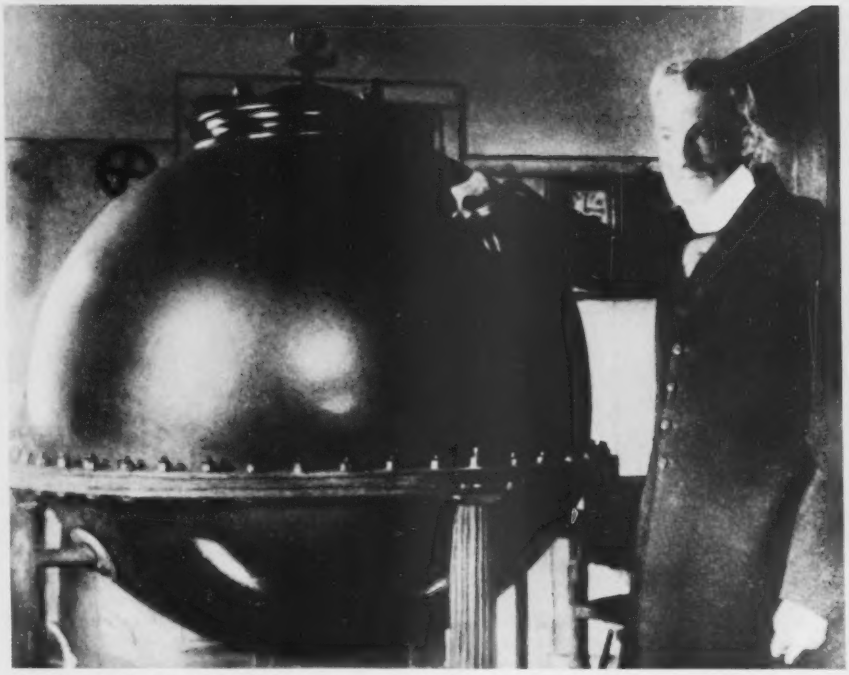
"Who was Mr. Swift? Mr. Reynolds? Gospodin Smirnoff? Mr. Factor? Mr. Hertz? Mr. Singer? Why is the world's largest bank in San Francisco? What sent New York Life Insurance Company ahead at the very time other insurance firms were dropping out like flies? Of the tens of thousands of jitneys, taxis and one-truck transportation systems, why did Greyhound prosper?"

Slappey observes that a reporter could walk into many businesses, ask almost any employee the name of the company founder "and get the blankest of stares."

As a means of commemorating the Bicentennial from a business standpoint, the U.S. Chamber of Commerce is developing for public service television a series of mini-documentaries on great men and great moments in American business. Perhaps the best way to understand what these stories are is to review a few of them, chosen at random from a book on the subject compiled by Slappey.

Almost every American is familiar with Borden's condensed milk. But how many people know who Gail Borden was, or the almost incredible struggle he had in developing his product?

Gail Borden was born in 1801 in Norwich, New York, became a surveyor, helped lay out Covington, Kentucky, became the official surveyor for Jefferson County, Indiana, when he was 20, and though he had only about two years of formal education was for a time a schoolteacher in Amite County, Mississippi.



THAT BABIES MIGHT LIVE—*Alonzo Holister, associate of inventor Gail Borden, poses with the vacuum pan that Borden used to make the first successful milk condensing experiment. Borden's earlier career included work as a surveyor, schoolteacher, and as the Texas editor whose 'Remember The Alamo' headline has gone down in history.*

In 1835 he became publisher of the Telegraph and Texas Register, the first permanent newspaper in Texas. One of his headlines, "Remember the Alamo!," rallied recruits to the Texas standard and when the Texans won their independence and became a republic, he helped draft its constitution.

Years later, when he was returning home from England on a sailing vessel, he noticed several immigrant babies crying in the hold. Four of the babies died as a result of drinking contaminated milk from diseased cows kept on board ship. He began thinking about a milk that would be safe for shipboard use, and as common on shipboard as sugar. He began to seek a method of removing the water from milk, and concluded that using a vacuum pan was the only satisfactory way. In 1853, after two years of experimenting, he had a new product which he called "condensed milk."

Rejected three times

Borden failed three times to get a patent for his process. At first, he was told that it lacked novelty. A fourth effort, backed by affidavits from General Sam Houston and Robert McFarlane, editor of *Scientific American*, was successful.

In 1856, he set up a factory in a converted carriage shop in what is now Torrington, Connecticut. But the factory had to close for lack of business. A second factory, opened in an abandoned mill in Burrville, Connecticut, in 1857, is in business today as Borden, Inc., having undergone a succession of corporate names.

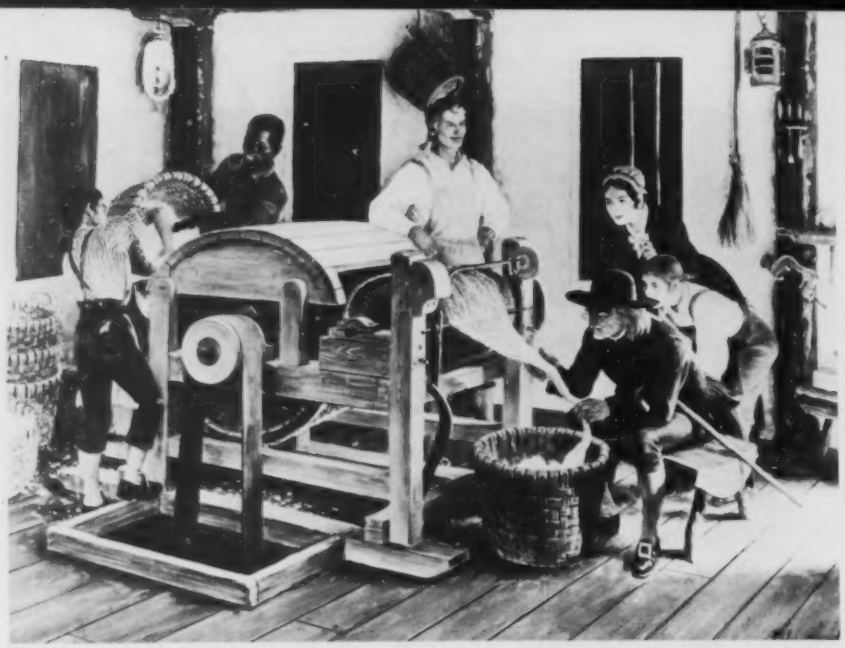
When Borden died in 1873, his company was firmly established as the leading milk-condensing company in the nation. From his first successful factory in Burrville, which offered one product, employed three people and had sales of $48,000 the first year, a corporation grew that ranks as one of the nation's 50 leading manufacturing companies, with 1972 worldwide sales of $2.2 billion, nearly 47,000 employees, more than 67,000 shareholders, more than 300 manufacturing locations and more than 7,500 products.

Inventor of skyline

Doubtless few people could identify Elisha Graves Otis, inventor of the elevator. By so doing, he likewise created the skyline, literally transforming the cities of the world.

In the 1850s, American cities were growing to keep pace with expanding businesses, but buildings were limited to four or five stories that people could climb, and space was lacking in downtown areas.

In 1852 Otis built a hoist for the Yonkers Bedstead Manufacturing Company, where he was master mechanic. Hoists for freight were nothing new, but few people would ride in them for fear of falling if the rope should break. Otis



THE MAGIC MOMENT—*The first successful demonstration of textiles produced in a U.S. spinning mill, by Samuel Slater in 1790 at Providence, R.I., not only led to dozens of other textile mills, but also sparked the invention of other factory machines and so launched this country into the process of industrialization. Years later, President Andrew Jackson called Slater (standing, at center) the "Father of American Manufacture."*

added a simple but sure automatic safety device to keep his hoist from falling. This was the first elevator.

In 1853 Otis opened the first plant to manufacture elevators, thus starting a company and an industry. The next year, in a spectacular public relations move, he rode his "safety hoist" at the nation's first World's Fair in New York. Raised high in the crowded Crystal Palace, he ordered the rope cut. The platform held fast, showing thousands of spectators and millions of people who read about it that the safe elevator had arrived.

All of the first elevators were for freight, and Otis did not install his first passenger elevator, in the E. V. Haughwout and Company store in New York, until 1857.

Elisha Otis, who was born in 1811, died of diphtheria during an epidemic in 1861, but his sons, Charles and Norton, continued the business. In 1868, they put the first elevators in office buildings, the New York Life, Park Bank, and Equitable Life, in New York. Builders became enthusiastic about its potential. It meant that the upper floors of buildings could be the most valuable instead of wasted space.

Early elevators were powered by steam. The Otis brothers tried many schemes to speed up elevator service. One was the "water balance" elevator, consisting of a car at one end and a rope and an iron bucket at the other. When the bucket was filled with water, the car went up. When the bucket was emptied, the car went down until the operator stopped it with a large hand brake.

Otis introduced the electric elevator in 1889. Five years later came the start of automation with the first push-button elevator. In 1900, Otis introduced escalators. Today computer systems with solid-state circuitry control whole groups of elevators. Sky lobby systems, which stack elevator hoistways to upper floors above those for the lower, make practical the twin 110-story Tower Buildings of the World Trade Center in New York City, where Otis is installing a record total of 239 elevators and 72 escalators. Otis has come along with other things, such as "Trav-O-Lator" moving walks and material handling operations.

The firm now has offices in 408 cities in 126 countries and plants in 17 countries outside the United States. Worldwide business from all activities reached $881 million in 1972, of which consolidated subsidiaries abroad contributed nearly $500 million.

In 1890, James C. Fargo, third president of the American Express Company, returned from Europe, where he had undergone a frustrating experience with the letters of credit which at the time were standard equipment for travelers on the Continent. While the letter of credit provided protection, drawing against it was a problem.

Fargo spoke to Marcellus Fleming Berry, a quiet-mannered subordinate, about the problem, telling him that letters of credit were of no more use than wet wrapping paper and that something had to be done.

Berry then devised the "traveler's cheque" in substantially the same form as that in use today, calling for the familiar signature and counter-signature.

In 1891, the first year it was in use, the traveler's cheque had a sales volume of $9,200. In ten years sales had jumped to $6 million. Now billions of dollars' worth are sold annually. The cheques are now issued in Canadian dollars, pounds sterling, Swiss francs, German marks and French francs as well as U.S. dollars.

Fargo told Berry to develop a money order whose amount could not be raised. Berry devised a money order in which the issuing agent would tear off printed figures along the edge until the figure for the amount of the order was reached, for example, $50 if the order was for that amount. This system remained in effect for years.

The team of Fargo and Berry set the tone for American Express down through the decades. The American Express Card is now carried by millions of travelers around the world. It is issued in 14 currencies, ranging from American dollars to South African rands. The company and its subsidiaries are doing business in 125 countries.

A Washington news correspondent from Korea used to say: "If you had to bail out of an airplane over any jungle in the world, and after touching ground you were approached by strange-looking men, you should just say Coca-Cola and they would understand you." While some of the competitors of Coca-Cola are likewise known worldwide, this story probably is not as fantastic as it may sound.

Diversify or play it safe?

Should you tamper with success? This question was faced by the Coca-Cola Company in 1955. Although it had only one product in two packages — the familiar 6½ ounce bottle and the fountain glass—it was a highly successful business enterprise. Profit growth had kept pace.

The question before the company was diversification. The Coca-Cola bottle had been called with justification "the most perfectly designed commercial package in history." Some felt that to put Coca-Cola in another dimension would be almost heresy. However, based upon market research and a series of highly successful tests, the decision was made to diversify. Now the consumer can buy Coca-Cola, not only in the original bottle, but in 10, 12, 16, 26, 28, 32, and 48-ounce one-way bottles, a 32-ounce returnable-resellable bottle, 12 and 16-ounce cans, and a five-gallon premix container for food counter dispensers. A plastic bottle for Coca-Cola is being developed.

The company decided also to market new soft drinks. It brought out Fanta, which had begun in Germany when World War II made the concentrates from which Coca-Cola syrup is produced unavailable there. Then came Sprite, TAB, and Fresca. In 1968 the company undertook the development of nutritional beverages which could benefit people who

receive insufficient nourishment in developing countries and elsewhere. The result has been several protein-based beverages.

Today the world demands Coca-Cola in more than 80 languages, and this does not include the company's other beverage products. The company's soft-drink business reaches into more than 130 countries. The diversity of products, 250 in all, pushed corporate sales to a record $1.87 billion in 1972, with a net profit of $190 million, quite a long way for a business venture that netted $50 in the first year of its life.

Everybody knows about the Gillette razor. But how many people remember King C. Gillette?

In 1895, Gillette, a 40-year-old traveling salesman, struggled in his Brookline, Massachusetts, home to shave with a dull straight razor, the dangerous instrument with which men from time immemorial had hacked up their faces. Gillette's mind turned, as often before, to something better.

"As I stood there with my razor in my hand," Gillette said later, "my eyes resting on it as lightly as a bird settling down on its nest, the Gillette razor was born. I saw it all in a moment, and in that moment many unvoiced questions were asked and answered more with the rapidity of a dream than by the slow process of reasoning. . . .

"Fool that I was, I knew little about razors and practically nothing about steel, and I could not foresee the trials and tribulations that I was to pass through before the razor was a success."

"Where ignorance is bliss, 'tis folly to be wise," said Alexander Pope. If Gillette had known the trials that lay before him, he might have given up. But he wrote to his wife, who was away on a visit, that "I have got it, our fortune is made." The same day he had the vision he went to a Boston hardware store, bought pieces of brass, some steel ribbon used for clock springs, a small hand vise, some files, and with these materials made the first safety razor.

In seeking to develop his razor, Gillette visited every cutler and machine shop in Boston and some in New York and Newark. He worked with the Massachusetts Institute of Technology, which failed to solve his problem of making a razor blade from sheet metal that would harden and temper suitably for holding a sharp edge. Gillette was told by all the metal experts of the time that it was not possible to put a sharp edge on sheet steel. "The razor was looked upon as a joke by all my friends," Gillette said.

With the help of William E. Nickerson, a highly regarded mechanical engineer, Gillette found answers to the sharpening, hardening and tempering problems that appeared to block successful development of his razor. The solution to these problems required the invention of special machines and processes to sharpen and harden the steel. These mechanical developments in themselves were considered major inventions and advanced the state of the art of metal treating.

DELIVERING THE GOODS—*The American marketing system has enabled innovators to get their products into the consumer's hands rapidly and inexpensively, thus hastening the rewards for their efforts. Above an Iowa farm family of the 1890s opens its latest shipment of mail-order goods. Catalog selling was introduced by Montgomery Ward in 1872.*

In 1901, Gillette and several associates formed a company and began operations over a South Boston store. In 1903, Gillette put his first razor on the market, and by the end of the year he had succeeded in selling exactly 51 razors and 168 blades.

Although other companies were developing safety razors at the time Gillette invented his, the other versions were a section of straight razor placed in a holder, enabling the individual to shave himself safely. But these razors required frequent stropping and honing of lifetime blades, which sold for $1.50 each.

Gillette's first razor was offered to the public for $5 with a set of 20 blades. A replacement set of 20 blades sold for $1. Today Gillette products are sold to more than one billion consumers in 170 nations and territories.

'Crazy' man

As late as 1938, the old railroad steam locomotive was believed secure. But, years before, a change was in process. The legendary Charles K. "Boss" Kettering, research director for General Motors, began trying to develop a two-cycle diesel engine in the 1920s. Kettering persisted in his effort against entrenched opposition and disbelief. He once said that GM's main advantage in the battle was its competitors' belief "that we were crazy." He lived to see the complete triumph of his idea. When he died in 1958, at the age of 82, steam locomotives were becoming a rarity. The few that remain are maintained for their historic value.

These are only a chance handful of the stories of the builders of the American economy. Others include: Henry Ford and the Model T and mass production; the Wright brothers and their flying machine; Thomas A. Edison and the electric light, phonograph, etc.; Willis Haviland Carrier, father of air conditioning; J. O. Eaton and the development of truck axles and the trucking industry; Edward Anthony and Mathew Brady and the growth of photography; Charles Proteus Steinmetz and other General Electric scientists and the electrical industry; J. Spencer Love and the development of rayon; Dr. Charles M. A. Stine and other du Pont scientists and the development of nylon; the W. H. Hoover Company and the shift from saddles to vacuum sweepers; Gustavus F. Swift and refrigerated cars; Michael J. Owens and the automatic bottle-making machine; William H. Mason and hardboard; A. P. Giannini, who after the 1906 earthquake started the Bank of America on a plank on the San Francisco waterfront; and scores more.

The story of American business and industrial invention and development is a one-of-a-kind thing in history that could never happen again. It is paradoxical that so few of its critical beneficiaries have bothered to learn what it is.

ECONOMIC
HIGHLIGHTS

U.S. Economic Heritage: Freedom, Growth

Economic Highlights is prepared by James L. Pate, Assistant Secretary of Commerce for Economic Affairs.

Until recently, economic growth was taken for granted as a natural and immutable process.

Inflation, recession, energy, and prospective shortages of capital and industrial capacity have made increasingly apparent, however, the need to actively sustain a growing economy. These problems have also raised the issue of what government can and should do to facilitate economic adjustments and promote growth. Should energy be rationed? Should credit be allocated? Should wages and prices be controlled?

Looking back, the role of government in the economy was an equally important issue 200 years ago. The Virginia tobacco planter and the New England merchant were acutely aware of how much their financial existence depended on the mercantilist policies of a faraway monarch. No doubt, many had never heard of the Scottish professor, Adam Smith, or of his *Wealth of Nations*, published in 1776, but some had. Thomas Jefferson recommended it to his son-in-law, John Randolph, as the "greatest book on political economy extant" and many constitutional scholars agree that the Founding Fathers were committed to the concept of a free market economy for the new Republic. Smith's libertarian ideals which appealed to Americans were founded on his belief that a competitive market would foster a prosperous economy. Such a system, would give each individual control over his just share of society's resources and would allow him to exercise this control in whatever way he chooses. It would give producers and merchants the incentive to supply what is most wanted, where it is most needed, as economically as possible.

Contrary to the general impression left by those who have cited *Wealth of Nations* in defense of the free enterprise economy, Smith favored an active role for government—in providing and maintaining public facilities such as roads and harbors, controlling (within limits) the free play of international trade and interest rates, and in promoting other such contributions to the general welfare. None of these functions conflicts with the essence of his theory—that the surest guarantee of a prosperous economy lies in the preservation of a competitive market and the efficient division of labor which it engenders. These qualities have provided the opportunity for America to take fullest advantage of its greatest asset, the broad diversity of its human skills and natural resources. Indeed, the economic history of the United States provides an excellent example of the progress possible under a free market system.

At the time of our first census in 1790, 94 percent of all Americans lived in rural areas and produced themselves almost everything they consumed. It took about eight farmers to produce enough excess output to provide food for one nonagricultural worker. Today, only about 5 percent of our population is engaged in farming, and we are now, overwhelmingly, net exporters of agricultural goods.

Since the first census the United States economy has gone from farm to factory (although our agricultural sector remains the most productive in the world), and from handicraft to high technology. All these changes occurred under a free market system.

While a complete history of our economy would require volumes, it is instructive to consider briefly how prominent Smith's competitive market figures into our history—how important it has been to our progress.

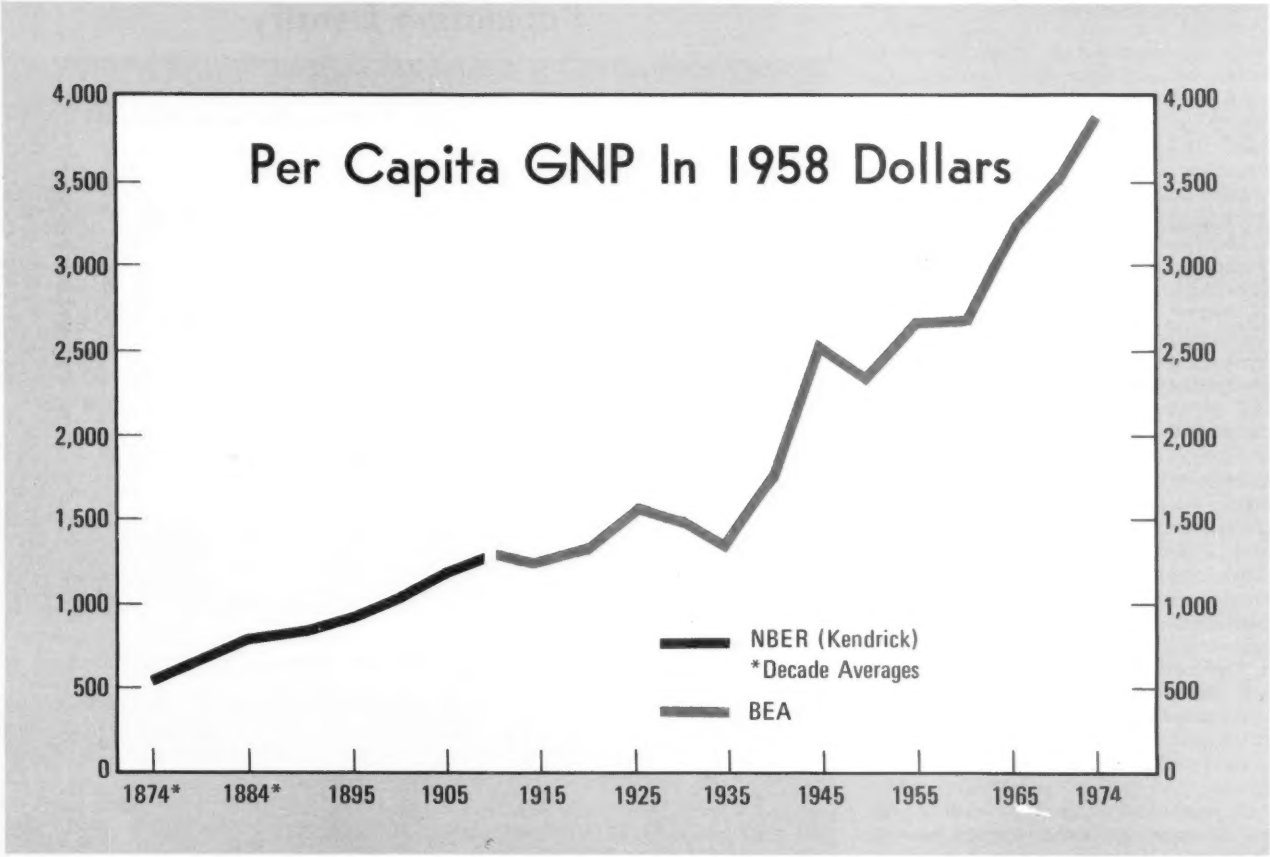
Unfortunately, because of the great degree of self-sufficiency (and thus the large nonmarket sector) it is difficult to quantify the changes that took place in the American economy in the early years. We do know that the population quadrupled between 1776 and 1840 and doubled again by 1860, growing from four to 32 million people. According to the available evidence, real income per person increased no more than 50 to 100 percent between 1776 and 1860. Between 1840 and 1860, however, the rate of increase appears to have tripled.

This change occurred as entrepreneurs, encouraged by the opportunities and rewards of a free market in a rich land, developed methods of exploiting its great potential. In so doing, they began an extensive transportation network, and developed new technologies which would revolutionize industry and agriculture.

Paradoxically, the opening of the frontier, ultimately one of our great economic triumphs, initially stifled the expansion of the market and the development of specialization. Pioneers moving westward carried with them the barest essentials and settled in extremely isolated areas. Agricultural techniques stagnated and even the limited specialization which had existed in the coastal Colonies became impossible on the frontier. Utlimately, the superior fertility of Western lands encouraged entrepreneurs to devise methods to develop it. The Erie Canal, which was open to traffic in the fall of 1825, was the first of many waterways which improved access to the Northwest, letting settlers in and permitting produce to be carried out. Though a vast improvement over the turnpike system, the canal age gave way, after 1840, to railroads which became not only the leading mode of transportation but also the paramount source of economic growth in the nineteenth century. Track mileage increased from 2,800 miles in 1840 to more than 9,000 miles in 1850. In the following decade the amount of trackage tripled.

The growing transportation system linked previously isolated markets and helped to stimulate industrial growth. In 1840 the total value of American manufacturing output was $983 million. By 1850 its value exceeded $1 billion and by 1860 it was nearly $2 billion. Significantly, this was, for the first time, close to the value of U.S. agricultural production. But America's economy was still young.

Even the most sophisticated industries had difficulty meeting the competition of European imports, but American creativity, spurred by the profit incentive, was paving the way for future American preeminence. Interchangeable parts, first used in the Eli Whitney gun factory, were being introduced in other lines of produc-



tion. Technological advances, the product and progenitor of specialization, accounted for much of the progress of this period (as it does today). The number of inventions patented rose from 554 in 1830 to 993 in 1850 and 4,778 in 1860. Progress in agricultural technology, thanks to such men as Deere and McCormack, was particularly rapid.

Competition made such innovation profitable and thus guaranteed the vitality of the economy. Furthermore, these developments were reinforced by a fundamental change in the structure of the individual enterprise. The expansion of business prior to the Civil War signalled the demise of the merchant capitalist, who provided materials, directed the work and sold the finished product. While smaller concerns continued to be run by individuals and partnerships, larger enterprises were taken over by corporations. By the 1830s many states were passing incorporation laws which permitted the pooling of resources of many stockholders and which increasingly granted the privilege of limited liability. The corporate entity made it possible to accumulate larger amounts of capital for manufacturers, railroads and banks and prepared the economy for even greater growth following the Civil War.

Over the past century, economic progress has become even more pronounced. In 1870, 40 million Americans produced $25 billion worth of goods and services (valued in 1970 prices). The average worker thus received about $1,800 a year (again in 1970 prices). With an average of three persons in a family the typical person thus received about $600. In 1970 there were more than 200 million Americans producing $800 billion in income—more than $9,000 a worker and nearly $4,000 a person. For this, the typical wage earner put in five eight-hour days and received about $4.50 an hour compared to six eleven-hour days at 50 cents an hour for his 1870 counterpart.

As the economy grew the nature of the free market system was also changing. By the turn of the century, specialization was nearly achieved insofar as few completely self-sufficient households remained. Competition continued to stimulate the economy, though, encouraging greater productivity through technological improvements and increased economies of scale.

If the rise in registered inventions was impressive in the preceding decades, it was astounding between 1860 and 1890, increasing from 36,000 to 440,000. This and other developments included the use of electricity as a source of power and light, and the invention of the telephone, typewriter, cash register, adding machine, and the laying of the first transatlantic cable. Before 1900 over two million electric lights were in use and nearly 3,000 power plants were in operation. The period following the Civil War also saw the development of the steel and petroleum industries, two mainstays of the modern economy. The coming of the Bessemer process permitted the use of steel in larger items than was previously feasible: locomotives as well as table knives, rails as well as hand tools.

The industry emerging from this new production required oil which was discovered in Pennsylvania in 1859 and was soon being produced at a rate of about 500 barrels a month. An oil rush began, leading to the production by the 1870s of nearly 40 million barrels of petroleum.

These accomplishments, along with the continued predominance of railroads (trackage increasing from 30,000 miles in 1860 to 193,000 at the turn of the century) also imposed costs in the form of a greater concentration of economic power. Giant industrial combinations began to emerge. Between 1887 and 1897 there were only 86 trusts in the U.S., the total capitalization of which was less than $1½ billion. By 1904 this number had grown to 318 capitalized at better than $7 billion.

This trend alarmed many, including President Theodore Roosevelt who undertook to restore fair competition in the

market. He began applying the Sherman Antitrust Act, which had seen little use since its enactment in 1890. Viewed by many as no more than an effort to appease the electorate, this legislation was interpreted by the Supreme Court to forbid all trusts which "unreasonably" restricted trade. Trust-busting was a mixed success but 25 indictments were brought during his term and 43 more under President Taft. Roosevelt also proposed and saw enacted establishment of the Department of Commerce and Labor in 1903 to oversee and investigate the operations of large corporations. Government had commited itself to the maintenance of a working competitive market. Big business remained strong, though, and flourished through the 1920s. Under President Coolidge, the small businessman found a friend in Secretary of Commerce Herbert Hoover. He made the Department of Commerce the most active of government agencies, encouraging American sales abroad, aiding the small businessman to increase efficiency, and providing assistance in gathering information and standardizing products.

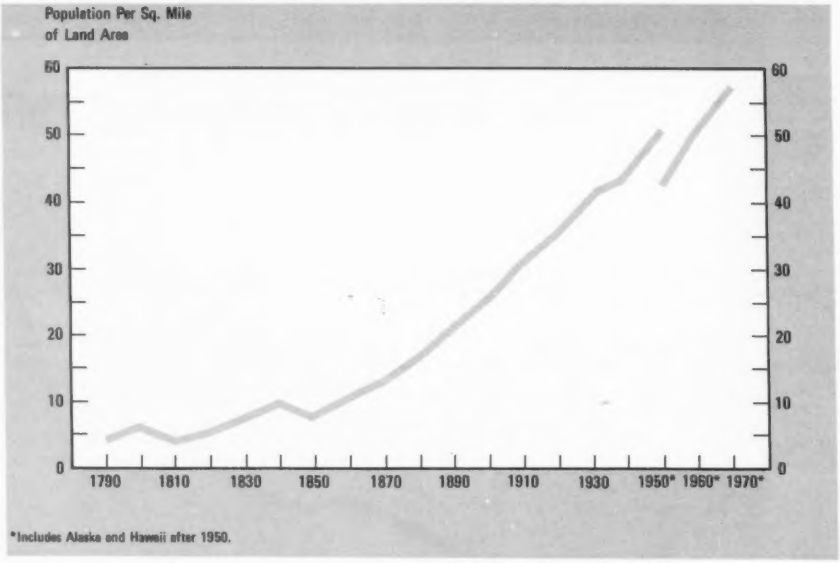
Unfortunately, by the end of the decade the American economy faced the most dire circumstances in its history. By 1933 over 13 million people were unemployed and nearly 500 banks had closed. During the thirties, government, which had previously undertaken direct control of the economy only in time of war, intervened heavily to promote relief, recovery, and reform.

This experience firmly implanted the principle that government should intervene in the market to "promote the general welfare." Government's role, though, was closely monitored by the courts. In the spring of 1934, the Supreme Court declared the NRA unconstitutional, saying that "extraordinary circumstances do not enlarge constitutional powers." The attempt of government to replace the market failed to bring about full recovery. But government's role in the economy had changed dramatically and permanently.

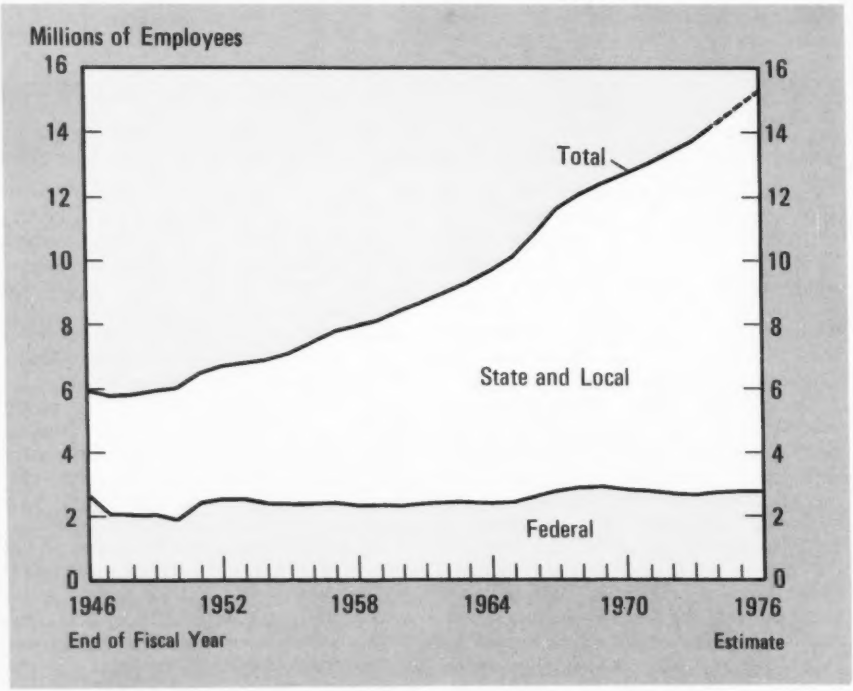
In the 30 years since World War II, the economy has enjoyed substantial growth. Downturns have been relatively mild. Prior to the current slump, the five recessions during this period averaged ten months while expansion periods averaged more than four years. The real value of the nation's output increased from $312 billion in 1946 to $821 billion in 1974.

At the same time, government has been growing. But, contrary to popular belief, most of the growth has been at the state and local levels in recent decades with strong rises in such fields as education, health, and public safety. This transfer of activity from the private to the public sector in no way diminishes the need for a strong competitive market.

Population Density



Government Civilian Employment



U.S. history has shown that government plays a vital role, not only in promoting the general welfare, but also in laying out the ground rules for the fair and vigorous competition to which we owe so much. The questions we face today to assure the continued progress of our economy through the Tricentennial, involve not so much the absolute size but rather the direction and usefulness of government's activity.

On our 200th birthday we should reflect on how profound an impact the competitive market has had in providing us with great material comfort along with unrivalled freedom of choice. We should make certain that government protects, not distorts, Adam Smith's contribution to which we owe so much. We have worked hard, first to build, and later to preserve the competitive market and the advantages it confers. Realizing how important it has been in our past should commit us to protecting it in the future.

Inventive Spirit Is Alive And Well In U.S. Despite Calls For Caution

This article was written by William E. Murtha, a former budget officer of the U.S. Patent Office, who now serves on the Advisory Committee of the Association for the Advancement of Invention and Innovation.

Every so often the notion that scientific and technological progress are the chief culprits in causing many of our national ills gains a certain vogue. This is a recurring malady and may even date back to the invention of the bow and arrow.

A recent "solution" to the problems of progress proposes a national moratorium on invention and innovation until we learn how to use the things we have already invented. At a time when industry and government receive daily charges that "the system doesn't work," this comes as curious criticism.

In effect, those wringing their hands about an excessively rapid rate of progress are saying that the American Patent System, an integral part of the nation's economic system, is working too well!

Several decades ago some sociologist dignified this brand of myopia by coining the phrase "cultural lag." According to this rationale, technology has a nasty habit of outpacing the capacity of the citizenry to cope with it, and this is very bad.

Several years ago at a gathering celebrating an anniversary of the Patent System, the eminent scientist and administrator, Dr. Vannevar Bush, commented that nothing ever seemed to require as much explanation as the obvious—particularly in Washington. Nevertheless, he urged those who are familiar with the Patent System to attempt periodically to dispel the fears of those whose understanding of the concepts underlying the system is fragile at best.

Fortunately, the men who drafted our Constitution developed a clear grasp of the concepts and the necessity for the new government to foster a climate of creativity among its citizens. This does not imply that no debate occurred during the Constitutional Convention on the granting of patents. The word "monopoly" was at least as offensive then as it is now. But those men came to see that a system incorporating a limited monopoly for the inventor was the price the government would have to pay. This was necessary, they came to realize, first to provide the required incentive to the inventor, and second, to get him to disclose fully the nature and workings of his invention to the public.

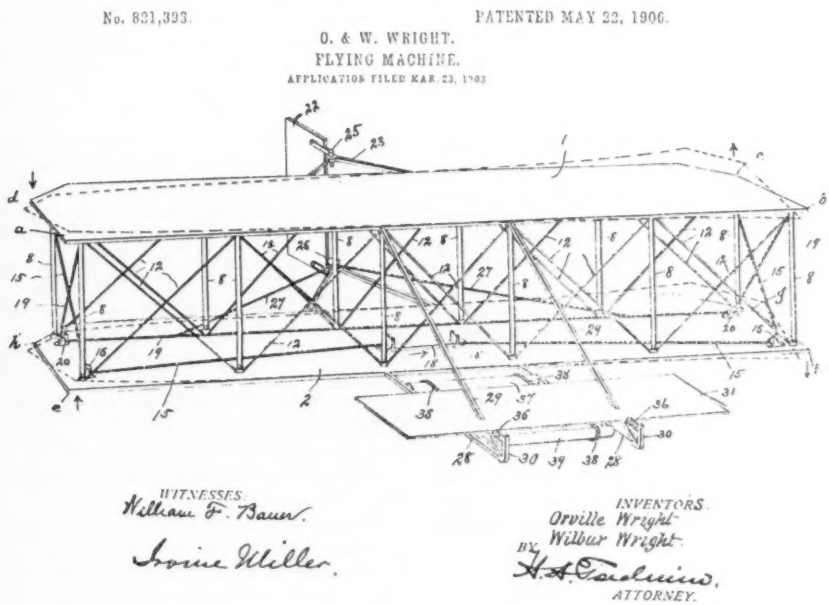
The widespread fear of the type of monopolies granted by European monarchs was overcome by the reasoning of men such as James Madison who explained that, in the larger sense, society would benefit more than the inventor because it would be assured of the benefits of his genius. Equally important, because of the full disclosure requirement, other scientists and inventors would have access to the most advanced developments in their art to use as a point of departure for their own experimentation.

On August 18, 1787, both James Madison of Virginia and Charles Pinckney of South Carolina submitted proposals to the Constitutional Convention in Philadelphia regarding the rights of authors and inventors, and on September 5 of that year the following clause was adopted as part of article 1, section 8, of the Constitution:

> *Congress shall have power . . . to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.*

President Washington underscored this concept when he addressed the second session of the First Congress, then meeting in New York City, on January 8, 1790. He urged the Representatives to give "effectual encouragement . . . to the exertion of skill and genius at home."

At a legislative speed that seems incredible today, within a week a commit-



PAGE OUT OF HISTORY—*The inventions on file at the Patent Office provide a short course in the social and economic development of the United States.*

© William E. Murtha, 1975

HALL OF GENIUS—*The Public Search Room at Patent Office headquarters. Through this room pass the most remarkable technical achievements of man's inventive genius.*

tee consisting of Edanus Burke of South Carolina, Benjamin Huntington of Connecticut and Lambert Cadwallader of New Jersey was hard at work drafting patent and copyright legislation. The committee presented their patent bill on February 16 and after debate in the House and Senate, it was passed and sent to a highly receptive President for his signature.

When President Washington signed the bill into law, it was the first time in history that the right of an inventor to profit from his invention achieved legal recognition. Following close on the heels of the enactment of the patent law, Congress enacted the first federal copyright law which afforded similar protection to authors.

Distinguished reviewer

A Patent Board was established to administer the law composed of Thomas Jefferson, Secretary of State; Henry Knox, Secretary of War, and Edmund Randolph, Attorney General. Jefferson, one of the most brilliant men of his or any other time, became the guiding force on the Board and personally examined many, if not all, of the inventors' applications submitted.

In light of Jefferson's reputation as a relentless foe of the "Crown monopolies," his understanding of the difference in granting a limited monopoly to authors and inventors is but another testimony to his intellectual sparkle. As a mathematician, astronomer, architect, student of languages and uncommon inventor himself, he wrote, "Nobody wishes more than I that ingenuity should receive liberal encouragement."

From the time that President Washington, Jefferson and Randolph signed the first United States Patent—granted to Samuel Hopkins of Vermont and Pennsylvania for an improvement in "the making of Pot ash and Pearl ash by a new Apparatus and Process"—a force was set in motion that produced unparalleled creativity in science and technology.

In addition to the landmark inventions patented by Eli Whitney, Cyrus McCormick, Samuel Colt, Samuel Morse, Charles Goodyear, Elias Howe, Alexander Graham Bell, George Westinghouse, Ottmar Mergenthaler, Thomas Edison and Henry Ford—all before the twentieth century—thousands of other patents were granted to inventors which gave credence to Ralph Waldo Emerson's short but perceptive comment, "Invention breeds invention."

As early as 1857, the United States had surpassed the invention rate of Great Britain which then had a far larger population and was considered the industrial leader of the world.

When the twentieth century arrived, the U.S. Patent Office was receiving almost 42,000 inventors' applications for patents a year. That same year, a Japanese commissioner assigned by his Emperor to investigate the reasons for the fantastic flourishing of American inventiveness filed his report:

> *"We have looked about us to see what nations are the greatest, so that we can be like them . . . We said, 'What is it that makes the United States such a great nation?' and we investigated and found that it was patents, and we will have patents."*

As we know so well now, the Japanese and others learned to appreciate the American approach of rewarding creativity. Abraham Lincoln had said that the "Patent System added the fuel of interest to the fire of genius."

As this nation headed into the twentieth century, it couldn't have anticipated the trials that global conflicts would place upon a relatively new world power.

As important as the scientific breakthrough inventions of the nineteenth century were, the task still remained of devising methods of producing new products at prices that permitted widescale use by the American consumer.

Although the word *commercialization* has acquired a certain semantic stigma in some circles, it is but another name for attracting investment. No matter how brilliant or provocative an idea might be, unless there are those who can reduce these ideas to practice, these ideas are doomed to founder on the shoals that claimed such favorites of the ancient alchemists as the philosopher's stone, the universal solvent and perpetual motion.

It was this penchant for practicality that marked the work of many of the twentieth century innovators. Man had known how to make glass containers for centuries, but it remained for Michael Owens of Toledo to devise a "Glass Shaping Machine" in 1904 which made possible immense production of glass bottles, jars and related products at a cost within reach of all.

Mass production's birth

A few years before, Henry Ford had received a patent for his improvements in carburetors especially designed for gas or vapor engines. This was followed shortly by Ford's patent for "New and Useful Improvements in Motor-Carriages." Looking beyond the somewhat stilted language, the American miracle of twentieth century industry, mass production, was being born and with a lusty bellow. The foundations for great industries were being formed and this facet of the evolution of the economy appeared in yet another manner.

In 1905, Congress passed and President Theodore Roosevelt signed the first Trademark Act. This act, which authorized the registration of trademarks in interstate and foreign commerce, reflected the maturation of the economy based on confidence that American industry had achieved goodwill for its products that was worthy of protection.

The next year another industrial seed of great consequence was planted when Orville and Wilbur Wright, of Dayton, Ohio, were granted a patent for inventing certain "New and Useful Improvements in Flying-Machines." The theory of flight was not new, and the desire of men to fly was at least as old as the exploits of Daedalus and Icarus

in Greek mythology. But, once again, it was necessary for men of monumental mechanical ingenuity to translate a hope and a theory into something that worked.

Just before the twentieth century began, Ferdinand Zeppelin, of Stuttgart, Germany, had received an American patent for his "Improvements in and Relating to Navigable Balloons." Neither the Wright brothers nor Zeppelin could foresee that their inventions were to change the course of military tactics and strategy forever. The phrase "Air Power" had not yet been invented, but the means for achieving it had.

The war winds that were blowing over Europe prior to World War I had not yet reached American shores. The United States Patent Office was receiving more than 70,000 patent applications yearly from 1912 through 1917. Perhaps the most notable among many thousands of others was that of Leo Baekeland of Yonkers, New York. His invention, which later came to be known under the trademark "Bakelite," provided the foundation of the plastics industry, and its importance requires no explanation.

But war did come, and when this country found itself involved, it was necessary to treat certain inventions in a new manner. An Army and Navy Patent Board was organized at the Patent Office to assess whether or not inventors' applications for letters patent were of military utility. Congress sent to President Woodrow Wilson an act, which he signed, giving the Commissioner of Patents authority to keep secret any invention whose disclosure might "be detrimental to the public safety . . . assist the enemy, or endanger the successful prosecution of the war."

Secrecy introduced

The strict demands of war had caused a reversal of the disclosure principle to the extent that more than 2,000 inventors' applications were kept secret until the cessation of hostilities in 1918.

Despite America's comparatively short exposure to World War I, both its men and its arms made an extraordinary impact. About the men, there had been little question except for their lack of military experience. As to their arms, the quantity and quality of the American productive machine first showed the potential that would prove decisive in combating the Nazi threat a generation later.

In retrospect, it seems almost that World War I was a test of the adolescent in adult affairs. The next test would be far more demanding, but adolescent America had been concentrating on the things id did best. For example, in 1919, John F. O'Connor of Chicago, Illinois, was granted 102 patents.

By then the Patent Office was receiving more than 80,000 applications a year, and this rate increased to nearly 95,000 annually by 1931. The rate of applications filed during the depression dropped as the economy was going through massive convulsions. But in 1935, the rate began to increase again. That same year there were 1,700 research laboratories in operation developing new products and devising new methods of producing familiar ones. In 1925 there had been but 200 such laboratories and this proved to be the wave of the future.

Industry had gone into the inventing business and when Pearl Harbor was attacked, America had an industrial plant available upon which to base the greatest military productive apparatus ever seen. Detracting nothing from the valor of the men in arms in World War II, American production was a large reason for Hitler's defeat.

Backlog developed

One of the unfortunate effects of World War II was the tremendous growth in the backlog of inventors' applications awaiting Patent Office action. Shortages of manpower and funds had produced a situation that in 1948 saw inventors waiting as long as two years before their inventions received their first look by a patent examiner.

This not only worked a hardship on the inventor, but also precluded the public from receiving prompt disclosure of his achievements.

Congress eventually responded to the pleas of inventors and in 1955 a backlog reduction program was inaugurated which is still continuing.

In 1955, it took an average of three years and six months for an inventor to receive a patent. Today this has been reduced to 21 months. In a year or two it will go to 18 months, thought to be the optimum for the needs of the inventor, the public, and for the proper functioning of the Patent and Trademark Office.

In his fiscal year 1976 budget, President Ford told the Congress:

> *The purpose of the patent laws is to stimulate science and technology and their commercialism by providing incentives for making inventions, disclosing them to the public and providing the necessary stimulus fcr investment.*

This statement acknowledges the evolution of both the American economy and the Patent System which has taken place during the twentieth century.

History has shown us the fruits of the Patent System. It would be extremely short-sighted to deprive ourselves of the full rewards it can bestow on the public in the future.

Rather than calling a halt to progress, we need to do everything in our power to sustain the creative climate in America.

Special Ceremony To Honor Patent System's Role

A reenactment of the drafting of one of the most far-reaching provisions of the United States Constitution, Article I, Section 8, will take place February 11, 1976, in the nation's birthplace, in special Inventors' Day ceremonies. George Washington, Thomas Jefferson, Benjamin Franklin and five other giants of the Revolutionary War period, all portrayed by Philadelphia lawyers, will depict the writing of the provision which established the American patent system and the passage of the first United States patent statute.

The reenactment, telecast nationally, will include the signing of an actual Letters Patent, issued on that day by the United States Patent Office. It is contemplated that President Ford will be the first to sign that document, emulating President George Washington who signed the very first U.S. patent ever issued. Other participants are expected to include Secretary of Commerce Rogers C. B. Morton, Attorney General Edward M. Levi, and Commissioner of Patents C. Marshall Dann.

The first U.S. Letters Patent was issued to Samuel Hopkins of Philadelphia. It was countersigned by Thomas Jefferson as Secretary of State and the then Attorney General Edmund Randolph. Framed facsimiles of that document will be found in libraries and offices throughout the country during the Bicentennial celebration, along with facsimiles of the Declaration of Independence and the Constitution.

Inventors honored

Living and deceased inventors whose contributions to America's progress in the arts and sciences over the past 200 years have been particularly noteworthy will be inducted into the National Inventors Hall of Fame as they have during annual ceremonies usually held at Commerce's Patent and Trademark Office in Washington, D.C.

The annual Inventor of the Year presentation will also be made.

The event, originated by the National Council of Patent Law Associations, as in each preceding year, will be co-sponsored by the Patent and Trademark Office. Because of the special ceremonies being arranged in conjunction with the American Bicentennial Celebration, the 1976 affair will also be co-sponsored by the American Bar Association, the Philadelphia Bar Association, the Philadelphia Patent Law Association, the National Park Service and Philadelphia '76, Inc.

Bicentennial Offers All Trading Partners Refresher Course On U.S.

America's trading partners are sharing our Bicentennial. They know that they, too, can profit by looking back with us to look ahead; that there are signposts in the American past that point the direction of our course for the future.

They are gathering with us now around the trade negotiating table at Geneva—and they ponder the American stance.

They view a vast American market—and contemplate its vitality and its continued receptiveness to foreign goods.

They see this spacious land, its pressing needs, its copious resources, and its limitless opportunities—and they wonder if they can count on its traditional hospitality to foreign investment.

They look at the world and its energy problems and ask themselves what type of leadership America will furnish.

If the past is prologue, the clues to the American behavior will be found in the 200 years of the American experience, the molding of its character, and the development of its institutions.

From its beginning, America had been viewed as a land of political freedom and economic opportunity. Settlers came for different reasons, some to escape tyranny, to seek riches, to worship freely, to release energy and talents they could not exercise in their native lands. They came—aristocrats, paupers, husbandmen, skilled mechanics, unskilled laborers, and people of many races and persuasions—first by the tens of thousands and then by the millions.

Whatever their expectations, the early settlers found no land that gave them immediate and comfortable wealth. Many died enroute; others perished from exposure to cold, hardships, and deprivations. But with a courage, resourcefulness, and self-reliance born of a stern environment, they hacked a land from the wilderness, fording its rivers, traversing its mountains, facing its dangers.

In one respect fortune was kind. Hard work brought rewards. The soil and the streams and forests yielded bountiful crops. And the independence of the settlers, the self-reliance of the pioneers, and the frontier freedom of westward expansion intensified the spirit of popular democracy and produced its own characteristic values.

Free enterprise and individual initiative became the watchwords for economic growth and progress; democracy replaced monarchy and the hereditary right of rule; and the pioneering spirit and social mobility replaced caste and the maintenance of the status quo.

Coincidentally, America declared its independence the very year Adam Smith extolled the virtues of free enterprise in his "Wealth of Nations." The system places a heavy premium on the initiative and creativity of the individual as well as the free play of the market forces of supply and demand. As practiced in the United States, the government has been invited to play a limited role to maintain the integrity of the free enterprise system, but the fundamental belief has been that Americans can judge and care for their needs better than any small group of distant government officials.

Lessons from the past

Clearly, the problems as well as the promise of today differ from those facing the agrarian society of four million 18th century Americans. But it is equally clear that it would be folly to ignore the attitudes and character and institutions in the making for 200 years.

The beliefs that effort will produce rewards, that capital should be free to seek its most rewarding employments, that individualism and private enterprise should not be hindered without compelling reason are firmly rooted in the American psyche.

The American faith in liberating market forces from outside interference was recently reaffirmed in the Trade Act of 1974 which espouses a continuing reduction of obstacles to free trade. Secretary of Commerce Morton recently expressed this philosophy when he declared that liberalized trade is the best framework within which nations can work for cooperative solutions to their economic problems. The Secretary declared that liberalized trade "is a practical solution to many of these problems because it promotes the more efficient use of the world's resources." About the forthcoming GATT trade negotiations, the Secretary said, "we must all work to make substantial reductions in the tariff and nontariff barriers which retard the free flow of trade. Those negotiations also represent a useful forum for dealing with other economic difficulties confronting the world economy."

It is unlikely that America will turn its back on its fundamental economic philosophy either at the GATT negotiations or in its own domestic economic policy. The post World War II era has shown, if anything, an intensification of the U.S. position on liberalized trade and a market economy.

Some evidence of the success of the U.S.-led post-war economic policies is seen in the rapid reconstruction of the free world countries which have become keen competitors of the United States itself. Two-way trade figures in 1974 show that the Federal Republic of Germany attained a level of $165 billion, Japan over $120 billion, France over $100 billion and the United Kingdom nearly $90 billion. And the United States, for the first time in its history reached $200 billion in two-way international trade, with U.S. consumers purchasing over $100 billion worth of goods produced abroad.

Just as it has been a market for foreign goods, the United States has been a constant and willing recipient of foreign capital. Early American planters and tradesmen relied on England for their capital needs, and European capital—bonds, equity capital, and direct business undertakings—contributed substantially to the construction of roads, bridges, canals, and other internal improvements in the formative years of the country.

Among the direct foreign undertakings in the United States have been the launching of many firms that have since merged into the American economic landscape.

Few Americans think of foreign-owned firms when they hear the names Shell Oil Company, Lever Brothers Soap, Beech Nut baby food, Good Humor Ice Cream, Nestle's food products or the Michelin Tire Corp. Yet, these are but a few of the hundreds of foreign-owned companies now operating successfully in the U.S.

In accordance with its free market philosophy, the United States has favored neither arbitrary government incentives to attract, nor discrimination to repel foreign investment—particularly if such measures distort normal trade and investment patterns. But with few exceptions, most of them in the area of national security, foreign-owned firms may set up business in the United States as easily as domestic firms, and they are free to take their profits home, reinvest them here or convert them to other currencies. The American blueprint for energy independence, urban renewal, pollution abatement, mass transportation, and other projects for national improvement will require huge infusions of new capital. New economic goals calling for vast investment and promising corresponding rewards offer outstanding new opportunities for foreign as well as domestic investors.

The American system of private enterprise has had its share of critics, many of whom charge that the system is wasteful, that it produces economic and social inequality. In general, the animating impulse in the American scheme has been productivity, the theory being that the people benefit most from a bigger pie than from the continual slicing of a smaller one. Whatever the merits of the theory, the fact is that the capitalistic economy as developed and practiced in the United States has produced fantastic and unparalleled results. It has:

- long been the most productive economy in the world, now turning out almost as many goods and services as West Germany, France, the United Kingdom, and the Soviet Union combined;
- long provided Americans the highest standard of living in the world;
- long conferred the widest choice of consumer goods;
- greatly spread the nation's wealth;
- provided almost total freedom of economic movement and individual economic opportunity;
- generated the most extensive applications of science and technology to improve the lives of its citizens.

As it now looks back on 200 years of change, America has seen itself grow from a tiny agrarian society of four million persons. Its population growth, abundance of resources, technological development, financial mobilization and business acumen propelled it to eminence as a world power. It has invested capital in underdeveloped lands just as it sought foreign investment capital to construct its own nation. Neither foreign domination nor military conquest has ever been a part of the American tradition. Its borders, some 5,000 miles north and south, are not military lines nor are its neighbors there compelled to maintain armies against aggression. America has erected no walls to keep the world out or its own citizens in.

If it wavers from time to time in fulfillment of its ideals, the ideals themselves have remained relatively constant. Few Americans would challenge the desirability of their basic freedoms. America has made no claim to perfection, nor does it make any now. During its entire history, it has sought the best elements of those cultures that its newest citizens have brought to its shores.

Many have placed this story in today's context. Tilton H. Dobbin, Assistant Secretary of Commerce for Domestic and International Business, has observed: "The frontier has been closed for over a half century, but the frontiers of the mind, of new ideas and new solutions to old and nagging problems remain open. America's faith in the principles of freedom are no less firm now than when they rang out in the Declaration of Independence 200 years ago. If its courage, optimism, and faith are occasionally stunned by the perplexing and bewildering events of the day, it has demonstrated on too many occasions its ultimate willingness and ability to respond to the challenges that confront it."

America's Trade Patterns Over 200 Years

1775 **Exports, $9 million,** principally to United Kingdom; chiefly wheat, tobacco. **Imports, $1 million,** principally from U.K.; chiefly textiles, coffee, tea.

1825 **Exports, $99 million,** principally to U.K., France, Mexico, China, Cuba; chiefly cotton, wheat, tobacco, silver. **Imports, $96 million,** principally from U.K., France, China, Cuba; chiefly textiles, silver, coffee, tea, sugar.

1875 **Exports, $538 million,** principally to U.K., Germany, Canada, France, Cuba; chiefly cotton, wheat, meats, tobacco, silver. **Imports, $540 million,** principally to U.K., Cuba, France, Brazil, Germany, Canada; chiefly textiles, sugar, coffee, tea, iron and steel.

1925 **Exports, $5,009 million,** principally to U.K., Canada, Germany, France, Japan, Cuba; chiefly cotton, petroleum, machinery, automotive products. **Imports, $4,292,** principally from Canada, U.K., Japan, Cuba, Brazil, Mexico; chiefly rubber, silk, coffee, textiles, sugar, nonferrous metals.

1975 **Exports, $105,000 million** (est.), principally to Canada, Japan, Germany, Mexico, U.K., Netherlands, France; chiefly machinery, farm products, chemicals, automotive products, aircraft, coal. **Imports, $100,000 million** (est.), principally from Canada, Japan, Germany, Venezuela, U.K., Nigeria, Mexico; chiefly petroleum, automotive products, other consumer goods, machinery, iron and steel, chemicals.

Principal partners and commodities listed in descending order of importance. Prepared by the Commerce Department's International Trade Analysis Staff.

U.S. Investment Activity Over 200 Years

1775 **Foreign Investment Here,** figures not recorded, but believed negligible. **U.S. Investment Abroad,** figures not recorded, believed negligible.

1790 **Foreign Investment Here, $11 million. U.S. Investment Abroad,** figures not recorded, believed negligible.

1840 **Foreign Investment Here, $200 million. U.S. Investment Abroad,** figures not recorded, believed negligible.

1900 **Foreign Investment Here, $3,400 million. U.S. Investment Abroad, $685 million.**

1940 **Foreign Investment Here, $8,100 million.** The British have historically been the largest foreign investors in America. **U.S. Investment Abroad, $12,200 million.**

1960 **Foreign Investment Here, $18,418 million.** About 72 percent of modern investment in U.S. is portfolio, and 28 percent direct ownership. **U.S. Investment Abroad, $44,500 million.** About 25 percent of this is portfolio, 75 percent direct ownership.

1973 (Latest available) **Foreign Investmenet Here, $62,200 million.** About 71 percent held by W. Europeans, 12 percent by Canadians, 6.5 percent by Latin Americans, 3 percent by Japanese. **U.S. Investment Abroad, $143,500 million.** About 31 percent in Canada, 30 percent in W. Europe, 16 percent in Latin America, 3 percent in Japan.

Summary prepared by Commerce's Foreign Investment Services Division.

Ten-Year U.S. Population Count Has Become Essential To Business

The nation's population in 1980 probably will be between 220 and 225 million compared to 3,929,214 in 1790, when the first census was taken and approximately two million on July 4, 1776.

This forecast is made by Vincent P. Barabba, Director of Commerce's Bureau of the Census, the government agency entrusted with the far-reaching task of taking the decennial census of population and housing. Barabba's population prediction for 1980 compares with a total population of 204,765,770 in 1970 and an estimated total of nearly 214,000,000 at present. The forecast reflects a slowdown from previous estimates, the effect of a decline in the annual fertility rate to the lowest point in history.

Looking both ways

Barabba says he thinks of the Bicentennial "as the bridge between our heritage and our future—a time to study the past to learn for the future." He adds that in preparing for future counts, Census is drawing on 185 years of experience.

He points out that the use of census information to aid decision-makers is as old as the census, and quotes from a letter from the Postmaster General in 1793 asking that Thomas Jefferson give him a copy of the population census of the states of that year, saying it would be helpful "in forming an opinion upon application for new post roads." Jefferson as Secretary of State was then custodian of the census records.

"Today, before a census is taken," Barabba explains, "the post office and other federal agencies are invited to pinpoint their statistical needs. This is but one of the many steps the Census Bureau is taking in planning for the 1980 census.

"Others include a 1980 census planning committee within the Bureau which has been at work for two years. We are reaching outside the Bureau as never before to seek recommendations from users and potential users of census data to develop the best possible census.

"A total of 75 public meetings have been held across the country within the past year to obtain grass roots input as to census data that would be most useful to local communities. And, as in 1790, one of the major needs voiced at the meetings has to do with roads—how residents get to work, the roads they travel and their means of transportation," Barabba reports.

"To improve the coverage of minority populations, advisory committees of knowledgeable people from the black and Spanish-origin populations have been established, and contacts with other minority groups will be developed.

"A wide range of organizations whose members have a direct or indirect interest in the 1980 census have been requested to submit suggestions. Governors of states have been asked for comments and recommendations.

"And the Census Bureau is looking beyond 1980—as far into the future as the year 2000. A program under which ideas and plans are being thought out for the nation's 22nd decennial census (the one to be taken that year) is already under way."

David L. Kaplan, Chief of the Demographic Census Staff of the Census Bureau, explains that formal planning work on the 1980 census began the day after the conclusion of the 1970 census period on

PUNCHED CARD SYSTEM—*A mechanical breakthrough incorporating a punch card system (left) facilitated the compilation of data for the 1890 through 1920 censuses. The Census Bureau supported research on the first electronic computer used for mass data handling, and continues to incorporate the latest techniques for compiling and quick retrieval of information (right).*

June 30, 1973. He says government recognition that work on the decennial census should be a continuing activity, first acknowledged when the 1960 census period ended, "constituted a major advance in public and political understanding of the importance of the census itself and of statistical operations in general.

"In the last two years," he adds, "we have reviewed the broad spectrum of the 1970 census experience, established general timetables, and instituted a number of test activities."

Kaplan lists a number of problems on which the Census Bureau is focusing attention.

One of two key matters, he says, is the continuing effort to improve coverage of the population. He points to evaluation studies showing that, despite important gains in 1970 over 1960, "we still missed about 2.5 percent of the U.S. population and the omissions still tend to be concentrated in certain groups and geographic areas.

"Further gains can probably be made," he explains, "through procedural changes and we intend to pursue all feasible possibilities. However, a prime deterrent for better coverage appears to be the positive and active cooperation of the hard-to-enumerate population.

"These are people without a fixed place of residence, people living in a place where they should not be, people engaged in illegal activities, people with an aversion to being listed in government records. . . ."

The second key matter, Kaplan says, involves the problem of how to produce population counts for counties and cities, as well as their component parts, with fewer geographic and processing errors, as well as with greater rapidity.

"We recognize," he adds, "that this will require important changes in the patterns of census operations and may add significantly to costs, but the goal is of overriding significance."

Emphasizing the importance of population counts for counties, county subdivisions, and incorporated places, Kaplan points out that the majority of them are legal entities receiving billions of dollars a year, along with certain rights and privileges, from federal and state governments on the basis of their population.

Higher accuracy demanded

The reapportionment and redistricting of legislative bodies, he recalls, is based on census figures. The requirements of the "one man, one vote rule" have greatly increased, he says, the demand for geographic detail and accuracy in population counts, and in order to draw equal-size districts the counts are frequently needed down to the enumeration district or block level.

THE SOCIAL HOUR—*The Census-taker's visit was always a memorable occasion, even for the neighbors. All data submitted to today's Census Bureau is absolutely confidential.*

In an effort to reach the hard-to-enumerate population, Kaplan explains, the Census Bureau in 1980 will expand considerably the number and length of "community educators" who in 1970 tried to get the census message across to this population in the large cities. The 20 people employed for this task in 1970, he says, may grow to 100 or more.

"We have already begun," he adds, "to hire such people—now called community service representatives—for our 12 permanent regional offices in order to maintain continuing contacts in some areas and thus provide us with ideas on how to maximize the impact of these representatives."

Kaplan says the Census Bureau probably will use the mail-out and mail-back system for taking the census for 90 percent or more of the population in 1980, and the door-to-door canvass method in very sparsely populated areas. The mail-out and mail-back plan, first employed in 1970, covered about 62 percent of the population in that year.

One reason for expanding this method, Kaplan explains, is that 87 percent of all households in the mail areas mailed back their forms in 1970, the great bulk of them within a few days. About one-tenth of the short forms and half the long forms had to be followed up, Kaplan adds, but the mass of this work could be accomplished by telephone.

"In connection with coverage improvement, and with particular emphasis on decreasing the disproportionately large undercounts of minority groups," he says, "a number of new or intensified procedures are being developed for testing. For example, in the inner-city areas, the 1970 special check of mail-out address lists will probably be expanded, and enumerator teams may be used for followup work.

"In rural areas, alternative techniques for obtaining address lists are being de-

vised for field testing later this year."

These are some of the problems confronted by the Census Bureau as it prepares for the 1980 and future censuses. They reveal how far the nation has traveled since the first census.

Aside from the decennial census of population and housing, the Census Bureau conducts scores of specialized censuses and surveys of numerous kinds as the demand for information increases. At the present time, there is growing interest in disability and health inquiries, and in better identification of ethnic groups, especially those of Spanish origin. This interest likely will be reflected in future information gathering.

So extensive has the work of the Bureau become that there is hardly a facet of American life on which it cannot supply some statistical information. With its battery of computers and auxiliary electronic equipment, the Bureau is able to get findings from a census or survey published promptly. An average of ten reports are issued daily, with some released only four days after the raw data are collected. In addition to printed reports, most data are available on tape or microfiche.

Computerized source map

And to make census data useful to local communities, the Bureau has developed tools enabling them to link census data with locally collected data. The Geographic Base File, with Dual Independent Map Encoding (GBF-DIME) system is a detailed computerized source map that is widely used for quickly and accurately locating addresses, calculating area size, measuring distances, and other pinpointing purposes. ADMATCH is a group of computer programs that match addresses to respective area units—street segments, blocks and tracts, giving local jurisdictions the ability to generate health, crime, building, and other local statistics into census areas, thus allowing the comparison of these special data with the more general census information.

The Census Bureau conducts seven five-year censuses on specific subjects. The Census of Agriculture covers operations in years ending in 4 and 9, that is, in 1974 and 1979 in the current decade. The economic censuses, covering manufactures, business, mining, construction, and transportation, deal with operations in years ending in 2 and 7, as does the Census of Governments. Current surveys—annual, monthly, weekly—provide up-to-date data on all these subjects except agriculture. The mail method is used in these censuses.

The census story is one of expansion and change to meet the requirements of a rapidly growing nation.

When the Declaration of Independence was signed, there had been enumerations of sorts taken in the colonies by British officials. However, nothing like a complete count of the inhabitants had ever been attempted.

The enumeration of 1790 was made to provide an equitable basis for representation in the House of Representatives. The idea of some form of representative legislative body was basic to the political thinking of the 55 delegates assembled at the 1787 Constitutional Convention in Philadelphia.

Under the Articles of Confederation, which had governed the loosely confederated states through 11 years of war and peace after the Declaration of Independence, each state might send two to seven delegates to the Continental Congress, but each state had only one vote. Small states like Rhode Island and Delaware liked this system, but larger states such as Virginia and Pennsylvania wanted a change.

George Mason, a Virginia delegate to the Constitutional Convention, summed it up thus: "Under the existing Confederacy, Congress represents the states, not the people of the states. The case will be changed in the new plan of government. The people will be represented."

A compromise was reached under which the new Congress would have: A Senate to which each state would send one senator (at the outset) and a House of Representatives in which each state would have representatives apportioned on the basis of its population, but not more than one per 30,000 inhabitants.

The Constitution, when ready for state ratification on September 17, 1787, provided that representatives and direct taxes should be apportioned among the states according to their respective numbers, and that the enumeration should be made within three years after the first meeting of the Congress, and within every subsequent term of 10 years. Thus the framework of representation and apportionment was established in the beginning.

By tying representation to direct taxes, the temptation to exaggerate population for the purpose of representation in Congress would be checked by the knowledge that the apportionment of direct taxes would be correspondingly increased.

The First Congress set to work to formulate the manner in which the enumeration should be conducted. Congress enlarged the first census beyond a simple head count by requiring enumeration of free white males over 16 in order to ascertain the military and industrial potential of the young nation.

The First Census Act provided that the census should begin on the first Monday in August 1790 and should be completed in nine months. U.S. marshals were put in charge. Every person of 16 years and older was required to answer the census questions to the best of his or her knowledge "on pain of forfeiting 20 dollars." Thus, from the beginning, answering census questions was required by law.

The census was turned over to 17 U.S. marshals, who hired about 600 assistants to do the enumerating. Their instructions were to list families "by the name of the master, mistress, steward, overseer, or other principal person therein."

No standard form was provided. The names were listed on whatever paper the assistants had at hand and then posted in taverns or other public places so that persons overlooked could add their names.

First business inquiries

The 1800 census asked for the age of the white population in addition to the information collected in 1790. Then in 1810, against the background of renewed trouble with Great Britain, Congress recognized the importance of developing the nation's economic independence from foreign manufactures. So the census was expanded to include inquiries on manufacturing to determine the kinds, quantities, and values of goods processed in each state and territory.

In 1820, Secretary of State John Quincy Adams ordered the marshals to number the persons engaged in agriculture, commerce, or manufactures. In 1820 also, the first question on "foreigners not naturalized" was asked, reflecting the rising national consciousness. In 1830, an inquiry about the blind, deaf, and dumb was included. America was beginning to establish institutions for persons with special needs.

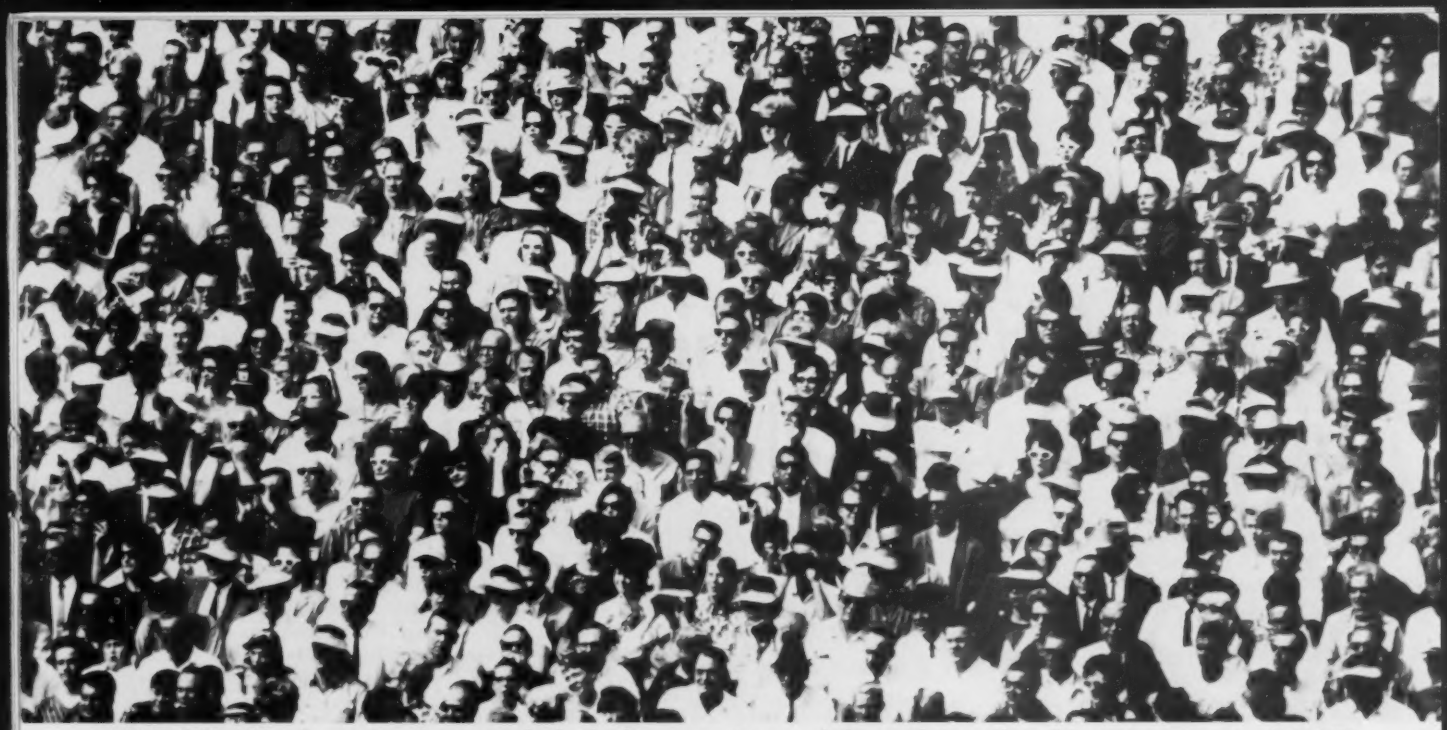
In their enthusiasm to collect new information, Congress overloaded the 1840 census machinery. There were so many errors in that census that complaints poured in to Congress. To improve on the crude methods of previous censuses, Congress established a Census Board which asked for recommendations from a number of distinguished statisticians, calling them to Washington as the earliest of many census advisory groups.

The result was many reforms in the 1850 census, the most far-reaching of which was the beginning of the individual enumeration of persons. Each free person, not just the head of the family, was to have his name recorded, together with specified details.

Each slave was to be personally identified. The census inquired in greater detail than ever before about farming, business, industry and mining.

The 1850 census was the first to offer protection of confidentiality for information provided. The marshals and assistants were warned "to consider the facts intrusted to them as if obtained exclusively for the use of the government." Public posting was discontinued.

In the 1860 census, statistics were compiled for the first time on women in indus-



COUNT 'EM ALL—*Census is trying to reach the hard-to-enumerate part of the population. About 2.5 percent were missed in 1970.*

trial work. Inquiries were made as to the number of "fugitives from the state" and the "number manumitted," as well as the number of slaves, slaveowners, and slave houses. Of the 31,443,321 Americans counted in this last census before the Civil War, 3,953,760 were slaves and 384,884 slaveholders.

A special question was added to the 1870 census. It was to find those "whose right to vote is denied or abridged on other grounds than rebellion or other crime." The Fifteenth Amendment had recently been ratified prohibiting exclusion from suffrage of any person on account of race, color, or previous condition of servitude.

The Tenth Census Act, providing for the 1880 census, required the supervisors and enumerators, who for the first time replaced the federal marshals and assistants, to take an oath: "I will not disclose any information contained in the schedule, lists, or statements obtained by me to any person or persons, except to my superiors." This essentially is the same oath all census employees must swear today.

The 1880 Census was designed as a great "centennial contribution of facts" in the spirit of enthusiasm over the nation's 100th anniversary. Information was gathered on religious groups and other subjects ranging from telegraph companies to the population and resources of Alaska and the condition of all tribal Indians. Women were allowed to take part with men. Many women worked as enumerators, and 200 found jobs tabulating statistics in the Census Office.

As time neared for the 1890 census, a mechanical breakthrough occurred—the punched card system. The inventor was Herman Hollerith, a special agent with the Census Office who may well be the "father of automation in statistical work." He not only invented machines that could record statistical items by means of holes punched in cards, but also machines that could count those items by means of an electric current passed through pins inserted in the machines.

Despite the new system, tabulation of data collected in the 1890 and 1900 censuses was staggering because of the many subjects covered. It was apparent that planning each decennial census, which had been done by Congress since 1790, was a job for specialists.

Thus Congress set up a permanent Census Office which later became the Bureau of the Census in the Commerce Department. In authorizing the 1930 and subsequent censuses, Congress gave final responsibility for initiating census plans to the Secretary of Commerce. Congress continues to have a hand in census matters by reviewing, authorizing, and funding programs presented to it.

It became obvious eventually that to provide data about the population and the economy only once every ten years was not enough. Decision makers frequently were faced with out-of-date information.

Eventually inquiries on agriculture, manufactures, business, and government were split off as separate five-year censuses. And in 1940 inquiries on housing were added to the decennial census, which became the Census of Population and Housing.

In the late 1930s, the Bureau pioneered the use of the sampling technique, offering replies from a scientifically selected cross-section of the population which represented the answers that a full census would provide at a fraction of the time and cost.

This culminated in the Current Population Survey, which has been conducted every month since 1940, providing fast, up-to-date measures of many social and economic trends.

Enter the computer

By 1950, the size of the U.S. population was such that punchcard processing, even with improvements, resulted in an unacceptable delay between the collection and publication of census data. The Census Bureau supported research and development leading to the building of the first electronic computer put into use for mass data handling, UNIVAC 1, and pioneered in its use.

A more recent advance has been the development of an electronic device which allows tabulation to bypass the punchcard stage altogether. Called FOSDIC (Film Optical Sensing Device for Input to Computers), it electronically scans microphotographs of census forms which have been designed so that questions can be answered by pencilling in very small circles. The positions of these dots are transferred onto magnetic tape ready for computer processing.

In the 1960 census, the Bureau mailed questionnaires to addresses in metropolitan areas. Householders filled them out and enumerators called to pick them up. This was the first step in the adoption of the mail-out and mail-back system, which is greatly reducing the number of temporary employees required.

Thus the census has evolved from the beginning in a manner to keep pace with changing times and the nation's needs.

From John Paul Jones To Supersships, Sea Played Vital Role In U.S. Life

Since long before 1776, America has been dependent upon the sea for her survival and prosperity.

The early New England colonists found that it was much easier to earn their living trading and fishing, for the poor soil and short growing season made farming unprofitable. The unspoiled forests of the New World provided the timber, pitch, turpentine and other naval stores necessary for shipbuilding. Exhibiting the maritime ingenuity that still characterizes American shipbuilding, the colonial craftsmen then designed and built the sleek, fast ships that made the Yankee sailor famous around the world.

The 30-ton *Virginia of Sagadahock*, built in 1607 in what is now Maine by members of the short-lived Popham Colony, was the first ship constructed in America. Shipbuilding activity rapidly extended down the Atlantic seaboard to other colonies. Massachusetts soon became the leading shipbuilding center, building more than 1,200 ships between 1674 and 1714. Many of these were sold to English buyers. In fact, on the eve of the American Revolution, one-third of England's merchant fleet had been built in the American colonies.

Influence spread

In time the Southern colonies also came to depend on New England's maritime skills, for the North's merchant ships carried the South's cotton, tobacco, and other farm products to the Old World and brought back European manufactured goods. By the last half of the 18th century, American merchant ships were profitably trading with the West Indies, Europe, Africa, China, and other Asian countries.

When the British Parliament enacted various laws attempting to restrict this trade, the independent-minded colonists resented it. At first they resorted to smuggling to get around what they felt were unjust taxes on their commerce. But protests eventually swelled to such a point that only independence from England would satisfy the rebelling colonies.

During the Revolutionary War converted merchant ships formed the nucleus of the new nation's Navy. This tradition of relying on merchant ships to assist the Navy in wartime has continued up until the present day. The great naval hero John Paul Jones was, like practically all of the Continental Navy's captains, a former merchant ship master.

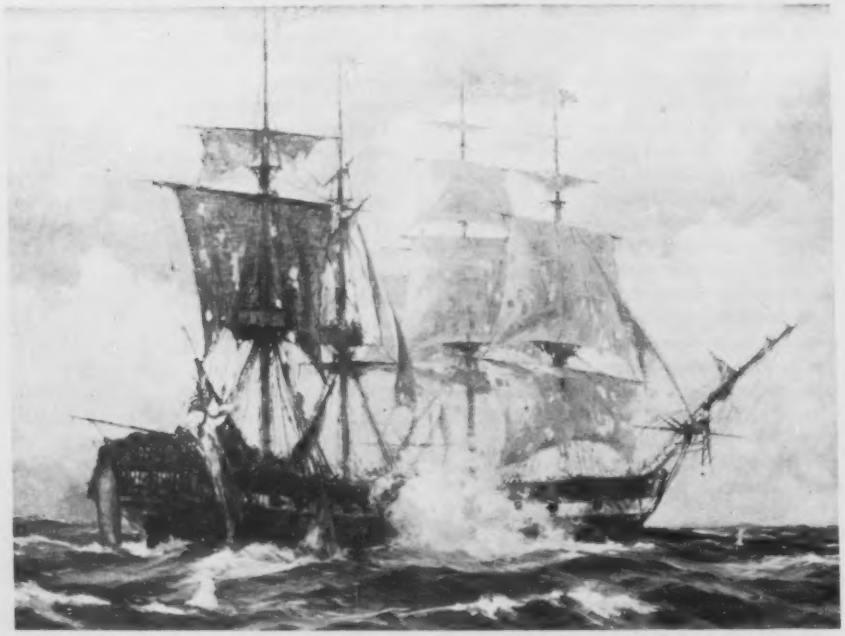
After the 13 colonies won their political independence, however, before them lay the more difficult task of securing economic prosperity. Accordingly, the first Congress passed maritime legislation to promote the development of the American merchant marine.

Special assistance

One of these pieces of legislation was the Customs Act, which gave American vessels a ten percent discount on tariff rates on imports, and doubled the rate for tea brought to this country on foreign ships. Another act permited American-owned and built ships to enter home ports with only six cents a ton duty, while foreign-flag vessels paid 50 cents a ton. Also, foreign ships engaged in coastal trade were required to pay duty at each port of entry, while American vessels paid only once a year.

With such encouragement it was not long before the new country's Stars and Stripes were flying in ports around the world. Spurred by many improvements in shipbuilding and navigation, American merchant shipping prospered in the first half of the 19th century. As the country expanded westward, ships transported goods and people from the East to the West Coast around the Horn—making possible the rapid development of that rich area following the discovery of gold in 1849.

The outbreak of the Civil War, however, interrupted this growth. America's maritime capabilities began a decline that lasted well into the 20th century. During the early 1900s, American ships were



SWITCHED . . . AND FOUGHT—*The former French merchantman* Bonhomme Richard *(right), commanded by former merchant ship master John Paul Jones, defeated the British warship* Serapis *in one of the more memorable U.S. victories of the Revolution.*

WORKHORSES OF THE SEA—*Ships from this World War II convoy, which were among the 5,592 merchant ships delivered by U.S. shipyards between 1942 and 1945, helped beef up the fleets of private U.S. operators who purchased them at war's end.*

carrying less than 10 percent of U.S. foreign trade; in sharp contrast, 100 years earlier, they were moving 90 or more percent of the country's commerce.

This dependence on foreign-flag shipping proved disastrous when World War I erupted in Europe. Foreign countries mobilized their merchant ships, which then could no longer carry America's commerce. The few American merchant vessels available could not handle the glut of exports that soon clogged U.S. ports.

To alleviate the crisis, Congress enacted the Shipping Act of 1916, which established a U.S. Shipping Board to initiate an extensive shipbuilding program. Although 2,318 vessels were constructed between 1918 and 1922, few were ready in time to assist the allied shipping effort during the war. Unfortunately, once the conflict was over, it was found that these ships, which had been hurriedly designed under emergency conditions, were ill-suited for peacetime uses.

In 1936, with another world conflict looming, Congress enacted new legislation designed to remedy maritime deficiencies that had been building up for decades. Known as the Merchant Marine Act of 1936, the legislation established a five-member United States Maritime Commission to develop a national program to promote the American merchant marine. The Act authorized the payment of government subsidies to offset the higher cost of building and operating ships under the American flag.

The Maritime Commission laid out a long-range program designed to build 500 new ships over the next ten years. The program was hardly under way, however, when World War II broke out in Europe.

The maritime industry was able to mobilize for this conflict much more easily than in World War I—largely as a result of the foundation provided by the 1936 Act. Within a year-and-a-half after the United States entered the war, shipyards were turning out ships faster than the enemy could sink them.

In all, U.S. shipyards delivered 5,592 merchant ships between 1942 and 1945, of which 2,701 were Liberty ships, 414 were the faster Victory types, 651 were tankers, 417 were standard cargo ships and the remaining 1,409 were miscellaneous designs.

Overall direction

The War Shipping Administration was established in 1942 to direct all ship operations during the conflict. Ships were requisitioned from private operators in both the domestic and foreign trades, foreign ships were bought, and enemy ships in U.S. ports were seized. These ships, together with the new vessels coming off the building ways almost daily, transported U.S. fighting men and millions of tons of supplies and ammunition to battlefields in every part of the world. The fleet's outstanding performance contributed immeasurably to the successful conclusion of the war.

Between 1946 and 1951, the government sold hundreds of war-built ships to American-flag operators, enabling them to modernize their fleets at reasonable prices. Hence, 25 years ago, there were more than 1,000 ships in the privately-owned U.S. merchant fleet.

In 1950, the President's Reorganization Plan 21 abolished the Maritime Commission and in its place established two new agencies: the Federal Maritime Board and the Maritime Administration, both of which were placed within the U.S. Department of Commerce. The Board was assigned the regulatory duties and subsidy determination functions of the former Commission, while the Administration handled various promotional programs.

This arrangement proved unsatisfactory, so in 1961 the Board was abolished and replaced with an independent, five-man Federal Maritime Commission, which handles only regulatory matters. The Maritime Administration remained within the Commerce Department and, in addition to its promotional duties, was given the task of administering the government's operating and construction subsidy programs.

In the immediate postwar period, the U.S. merchant marine prospered, for foreign merchant fleets, which had been devastated during the war, offered little

QUEEN OF THE SEA LANES—*The clipper ships gave this country predominance in world shipping in the first half of the nineteenth century. After the Civil War however, the U.S. merchant fleet went into a long decline which lasted until well into the 20th Century.*

competition. Gradually, however, foreign nations rebuilt their fleets and soon their modern vessels were competing for American cargoes.

During the 1950s and 1960s American liner operators took advantage of government subsidies to replace or upgrade many of their aging World War II cargo vessels.

It was, however, a different story for the bulk segment of the fleet. The number of tankers and bulk carriers declined until, by 1969, more than 95 percent of the bulk cargoes moving in U.S. foreign commerce was being carried in foreign-flag ships.

Realizing that this dependence on foreign shipping was not in the national interest and that it was time to update the national maritime policies emanating from the Merchant Marine Act of 1936, the President submitted to Congress an innovative program to revitalize the merchant marine. Congress passed the legislation with only two dissenting votes and on Oct. 21, 1970, the program was signed into law as the Merchant Marine Act of 1970.

Strong stimulus

As the most comprehensive maritime legislation enacted in more than three decades, the Act initiated a long-range shipbuilding program that has provided U.S. shipyards with their largest peacetime backlog of orders. These new ships are not only enhancing the present superiority of U.S. intermodal operations but also are bringing about a re-entry of U.S.-flag bulk carriers into the nation's foreign trade.

The Act overhauled the government's subsidy programs and, most importantly, made bulk carriers eligible for both operating and construction subsidies. The Maritime Administration's research and development programs were expanded with the goal of making U.S. shipbuilders and shipping companies more productive and less dependent on government subsidies.

Finally, MarAd expanded its programs for the domestic maritime industry. Most recently, it established a new regional office in Cleveland to serve the Great Lakes maritime community.

Both shipbuilding and shipping companies have responded to the challenge to modernize their operations. To cite one example, during the 1960s, the government was funding 50-55 percent of the cost of building a merchant ship. The 1970 Act immediately reduced the maximum subsidy rate to 45 percent and mandated a two percent annual reduction in the rate until a 35 percent ceiling is reached in fiscal 1976.

There have been many subsidized contracts awarded, however, where the subsidy rate was below the prescribed maximum. For tankers, subsidy rates have been as low as 33 percent and for technologically-advanced liquefied natural gas (LNG) carriers they have ranged between 16 and 25 percent. In one special case LNGs are being built for U.S. foreign trade without any subsidy.

Two reasons why American shipyards have been able to improve their competitive position are the substantial capital investments they've made to expand and modernize their facilities and their successful marketing of standardized designs.

Standard designs help

When a series of standard ships is built, yards are encouraged to invest in capital equipment and each worker has an opportunity to become increasingly proficient at his job. The result, of course, is that it takes less money and less time to build each individual ship in the production run.

At present, ten U.S. shipyards are marketing standard design vessels. Perhaps the two most successful series are the LASH vessels constructed by Avondale Shipyards of New Orleans and the 89,700 dwt. San Clemente-class tankers being built by two shipyards on the West Coast.

American-flag operators also have registered significant gains in productivity under the 1970 Act. Automated machinery and equipment installed aboard new ships, reduced crew sizes, aggressive marketing techniques, and the new cooperation between maritime labor and management have all helped to reduce expenses and increase revenues.

The United States currently has the largest fleet of intermodal ships in the world. Containerships, barge-carrying LASH and Seabee vessels, and roll-on/roll-off vanships speed across the oceans carrying in a year's time four to six

times the amount of cargo that a conventional breakbulk ship can transport.

These efficient cargo carriers are largely responsible for the recent gains the U.S. merchant marine has registered in the carriage of the nation's foreign commerce. American ships, which carried 23.7 million tons of foreign cargo in 1972, moved 41 million tons last year. This represents a significant 73 percent increase in tonnage over a two-year period. In terms of cargo value, the U.S.-flag movement doubled from $11.1 billion in 1972 to $22.1 billion in 1974.

Over the horizon

If the U.S. merchant marine is to continue to increase its share of the nation's foreign trade, it must begin now to plan for the future. Trade and commerce have been the major catalysts in man's progress since earliest times. International trade undoubtedly will continue to expand and water transportation will continue to move most of this trade.

The types of cargoes flowing in international commerce will dictate the types of ships that will comprise the U.S. merchant fleet in the year 2000. For example, it is reasonable to expect that the United States will be exporting large quantities of grain and importing various ores and minerals. Hence, the number of specialized dry bulk carriers in the fleet should increase.

Similarly, with the continued depletion of the world's petroleum reserves and with the projected growth of nuclear, solar, and geothermal energy resources, one would expect conventional tankers to decline in importance.

There will still be, however, a sizable demand for liquid bulk carriers. A maximum of 35 to 40 U.S.-flag LNG carriers will be needed to handle natural gas imports through the end of this century.

By 1980, the Alaskan pipeline will be operating near its maximum capacity of two million barrels per day. Tankers ranging in sizes from 70,000 to 120,000 deadweight tons will be needed to carry this oil to the lower 48 states. For the longer ocean voyages from the Middle East, the predominant tanker sizes will range between 350,000 to 400,000 dwt.

A more futuristic prediction would include such novel designs as nuclear-powered, ice-breaking tankers and submarine tankers as part of the bulk fleet. These unconventional ships could profitably exploit the large petroleum reserves locked beneath are Arctic and Antarctic ice.

Conspicuously absent from tomorrow's American merchant marine will be the breakbulk freighters which dominated the world's shipping lanes for the first half of the 20th century and even today comprise nearly 30 percent of the ships in the U.S. merchant fleet. The current breakbulk fleet will have reached the end of its economic life by the year 2000 and the prospects for new construction of this type of ship are virtually nil.

THE NEW WAVE—*Modern tanker, built under the provisions of the Merchant Marine Act of 1970, symbolizes the resurgence of the U.S. merchant marine, which once again had slipped from its pre-eminent position at the end of the Second World War.*

Breakbulk cargoes will be diverted either to intermodal ships or to a new line of specialized neo-bulk vessels, which will handle such commodities as forest products, iron and steel, rubber, textiles, and automobiles. However, faster, more modern containerships, barge carriers and roll-on, roll-off ships will move the largest portion of liner cargoes.

Finally, the rapid growth in such high-value shipments as electronic gear, scientific instruments, and medicines will create a great potential for an express ocean shipping service. Although air freight can be expected to corner much of this market, a surface-effect ship, which rides above a cushion of air at speeds of 80 to 100 knots, could offer a competitive service.

Major changes will also be taking place within ships. Automated machinery and equipment, satellite communication equipment, and sophisticated guidance systems will be commonplace in the newer ships in the fleet and will reduce costs and improve operating efficiency. Moreover, nuclear propulsion plants and gas turbine engines should be propelling some of the ships in the fleet.

History has indelibly recorded the dependence of this nation on its merchant fleet. Already dependent on overseas sources for many critical materials, the United States in the third century of its independence will find that a strong merchant marine continues to be a most important asset.

Standards Specialists Provide Guidelines For U.S. Business

Thanks largely to Commerce's National Bureau of Standards, American businessmen can embark on projects sure in the knowledge that the measurements and materials used in their products will be acceptable.

NBS has helped shape the character of American industry, commerce, and science. Established in 1901 by an act of Congress to provide a solid foundation of measurement standards to support the nation's growing industrial power, the Bureau continues to respond to national needs for measurement science.

As NBS approaches its 75th anniversary during the nation's Bicentennial, it focuses on the new national concerns of energy conservation, environmental control, consumer protection, computer privacy, health and safety.

The Commerce unit's mission is clearly defined in the Organic Act of 1901 which assigns the responsibility for the national measurement standards, physical constants and properties of materials, development of test methods, establishment of standard practices and cooperation with other government agencies.

Subsequent legislation, including the Brooks Act of 1965, broadens this mandate to make NBS the guardian of the government's investment in computers. Since 1901, the Bureau has grown into a multidisciplinary laboratory with the diversity and technical excellence to meet national goals.

To understand where NBS is today and where it is going, it is necessary to examine agency's past.

Emphasized electricity

The first two decades of the 20th century witnessed a new industrial revolution which brought electricity to American industry. It was largely to meet the needs of the electrical instrument makers and manufacturers that the Bureau was organized. Almost half of the people coming into the new Bureau worked on fundamental electrical measurements.

Under a series of strong Secretarys of Commerce who vigorously promoted business and industry, the Bureau introduced scientific methods more rapidly to industry, urged the standardization of parts and products, and encouraged the manufacture of products previously imported.

Radio communications developed simultaneously with NBS, the initial work being done by a Navy guest worker investigating the practical applications of radiotelegraphy. In 1911, the Bureau itself entered the wireless field by calibrating a wavemeter. Research in radio began in earnest with an investigation of ammeters used to measure the high frequency current in transmitting apparatus.

The muck-raking reform period of the 1900s served to acquaint other government agencies and the public with the name of the National Bureau of Standards, as regulatory commissions increasingly turned to NBS for help in protecting the public interest.

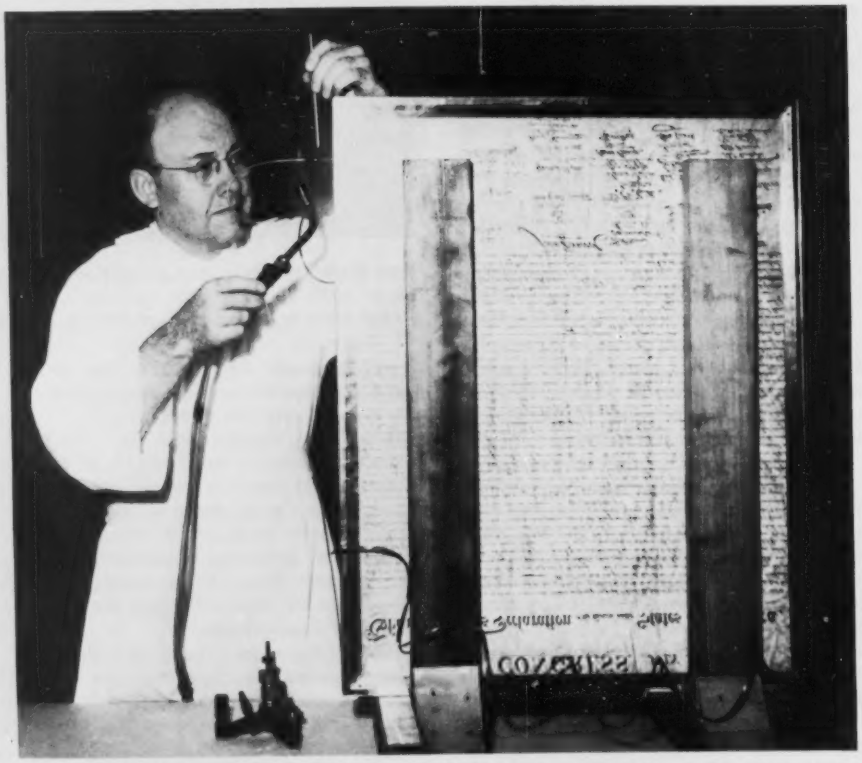
For example, one of the early investigations by the Bureau's gas engineering group led to modifications of street gas lamps in the District of Columbia that subsequently increased street illumination by 50 percent, with no increase in the cost of service. Further NBS investigations of gas appliances and furnaces led to increases in gas efficiency, safety and sales. This type of work established a pattern that has continued through this day.

When the country became involved in World War I, NBS participated in a whole range of wartime efforts. The metallurgy division turned from its rail and wheel investigation to armament steel research; the spectroscopy division to military photography; the colorimetry division to camouflage; the radiometry division to invisible signal devices.

Commercial applications

After the war, NBS turned its wartime work in the aviation field to commercial applications. NBS scientists developed the radio compass and the first blind flying and blind landing radio guidance systems for aircraft.

With Herbert Hoover as Secretary of Commerce from 1921 to 1928, NBS be-



PREPARING FOR TRICENTENNIAL—*In 1950, the Bureau of Standards helped devise a method of airsealing the Declaration of Independence from the destructive effects of light, atmospheric gases, and changes in temperature and humidity.*

came a mainstay in his "crusade for standardization" by developing standards to eliminate waste in manufacturing and distribution. Among the earliest results of this work were reducing the price of incandescent lamps from $1.30 to $.16, lowering the number of available sizes of milk bottles from 49 to 9, and setting standards for the composition of the hoses.

NBS extended this standardization campaign to include investigations of the utilization of raw materials and new uses for industrial by-products. Also, scientists examined car engines to find ways to inincrease their operating efficiency, studied the reclamation of used lubrication oil, and investigated stress and fire resistance of building materials.

With industrial research at a low ebb during the Great Depression of the 1930s, NBS concentrated on fundamental research studies of cosmic radiation, weather and radio phenomena, X-rays, stratospheric phenomena, solar eclipses and physical constants of pure substances. One particularly significant project, sponsored by the Works Progress Administration in New York City, provided definitive mathematical tables of importance in various applied fields.

Consumer concerns

During the latter part of the decade the Bureau oriented its work toward its ultimate beneficiary—the consumer. NBS tested and developed equipment to measure the durability of textiles, revised its directory of commercial laboratories that tested consumer products, and issued periodically its "List of Publications of Interest to Household Purchasers." The most widely circulated of these consumer brochures was "Services of the National Bureau of Standards to the Consumer," which examined the relation between NBS testing and over-the-counter buying.

The story of the NBS response to the needs of the country in World War II begins in 1938 with the discovery of the fissioning of uranium and its military significance. Bureau scientists worked primarily as a central control laboratory for determining the purity of uranium and other materials used in the project. The Bureau also established radioactive measurements and safety procedures for handling fissionable materials.

The NBS role in the war effort ranged from investigations in support of civilian defense programs to petroleum conservation and studies of synthetic rubber; from radio-weather prediction to the development of a guided missile and radio proximity fuse.

After the war, research in electronics centered on electron tubes, printed circuits, and automatic computers. In 1950, the Bureau dedicated SEAC (Standards Eastern Automatic Computer), a computer of its own design and development. SEAC was the fastest general purpose, automatically-sequenced machine then in operation.

The new age of mathematics, electronics, nuclear physics, trace research, radio propagation and high polymer research challenged the Bureau to provide new fundamental physical standards, physical constants, and standard samples. Knowledge gained from atomic bomb work was translated into such peacetime applications as an atomic basis for the standard of length.

The launch of Sputnik in 1957 ushered in the Space Age and offered new measurement challenges for NBS. It was now necessary to measure high temperature and accurately determine thrust; to assess temperature, corrosion and radiation damage in metals, alloys and ceramics; and to analyze high energy radiation phenomena.

NBS responded by using its huge deadweight machines to measure rocket and jet engine thrusts and weigh rockets and components. New frequency standards were developed with higher accuracy for

Major NBS Achievements

1904—Development of the first neon tube.

1908—First postgraduate school in government established, now conducted in cooperation with universities in the Washington area.

1915—Development of radio direction finder. This direction safety device is now in general use by all commercial airlines.

1920—First atomic clock developed, which used an ammonia molecule.

1922—First AC radio set designed.

1924—Aerodynamic characteristics of airfoils at high speeds described.

1925—Standard frequency and time interval broadcasts began.

1925—First program initiated for the testing and approval of gas appliances.

1926—Proving ring for calibrating testing machines developed.

1927—First standards and a certification system for materials for dentistry developed.

1930—Landing beam and blind landing system developed. This provided aviation safety via radio.

1930—First X-ray standards and first X-ray code established.

1934—Preparation of heavy water. Fractionation of the isotopes of hydrogen and of oxygen in a commercial electrolyzer.

1934—Elastic dental impression compound developed. This alleviated painful fittings for dentists.

1941—Radio proximity fuse for bombs developed.

1944—The "Bat" developed, the first successful guided missile which was the only automatic, homing guided missile carried into large-scale production and used during World War II.

1946—Printed circuit techniques developed. These are still widely used in manufacture of electronic assemblies.

1948—Magnetic fluid clutch developed. This invention has been the basis for the production of a wide variety of clutches.

1950—SEAC dedicated. This was the first automatically sequenced, high speed, electronic digital computer in the United States.

1963—National Standard Reference Data System put into operation to provide critically evaluated data in the physical sciences on a national basis.

1964—New broadcast facilities dedicated, enabling laboratories to calibrate their precision sources to an accuracy of better than one-thousandth of a second in three years.

1971—Metric study report recommends U.S. conversion over a 10-year period.

1972—Highest frequency measurement ever made, the measurement of an infrared laser beam's frequency, raises possibilities of using one gage not only for the three dimensions of space but also for the fourth "dimension" of time.

1973—Distance to moon measured more accurately than ever, by firing short pulses of laser light at special mirrors on the moon and measuring the return time of the pulses.

1975—Breakthrough in isotope separation promises improved techniques for obtaining significant quantities of isotopes of boron, chlorine, and other elements for application in medicine and in environmental and agricultural research.

tracking deep space satellites. NBS studied the effects of radiation in outer space on optical instruments in spacecraft, and developed antenna of beryllium-copper for use in measuring extreme cold in space and a unique spectrometer for planned lunar geological exploration.

Hard on the heels of the Space Age came the "Day of the Consumer," and NBS was again involved.

In 1966, the Fair Packaging and Labeling Act gave NBS the responsibility for identifying the undue proliferation in the number of weights, measures and quantities in packaged commodities on store shelves which were making it difficult for the consumer to make rational decisions.

The 1967 Flammable Fabrics Act resulted in NBS research to determine fabric flammability, devise test methods, establish standards for materials for clothing and home furnishings. This research has recently produced flammability standards for children's sleepwear.

The Clean Air Act of 1970 asked for NBS technical assistance in the development of better car safety performance, including tires, brakes and seatbelts.

Metric data office

On still another level of consumer concern, legislation in 1968 authorized the Secretary of Commerce to conduct a study of conversion to the metric system. As a result of this investigation, completed in 1971, NBS now maintains a metric information office to conduct educational programs to ease the impact of such a change.

Today, Congress continues to turn to NBS for help in finding solutions, as is apparent in some of the legislation passed in fiscal 1975.

- The Fire Prevention and Control Act established a National Fire Prevention and Control Administration in Commerce and reaffirmed NBS' responsibility for research and development in this area.
- The Privacy Act of 1974, designed to make maximum use of government computers and provide for individual privacy at the same time, accelerated NBS efforts to provide standards, guidelines, and software to meet these goals.
- The Solar Heating and Cooling Demonstration Act charged NBS with developing performance standards and specifications for residential solar systems, as part of a national search for new sources of energy.
- The Federal Nonnuclear Energy Research and Development Act of 1974 directs NBS to evaluate all promising energy-related inventions as part of a national program to develop nonnuclear energy sources.

In the decade of the 1970s and in the future, NBS will be finding solutions to problems in energy and materials conservation, health care delivery, environmental control, consumer product safety, and the quality of life for all Americans.

NBS will continue to be a leader in energy conservation programs. The NBS Energy Conservation Program Guide for Industry and Commerce (EPIC), published in 1974, is an invaluable handbook for smaller firms and industries in initating energy-conserving campaigns. The NBS study of retro-fitting homes with storm windows, caulking and additional insulation will help consumers make the most out of their energy dollars.

A voluntary system for energy-efficiency labeling of household appliances will help consumers base their purchase decisions on the operating cost of an appliance. More than 95 percent of the air conditioners now being produced carry such labels, and similar cooperation is expected with other appliance makers.

The nation has just begun to recognize the materials crisis in which NBS will play a role in encouraging the development of materials with better performance. The Bureau is already turning its attention to inventing, promoting, and standardizing the presently existing and new nondestructive evaluation methods in an effort to make materials last longer. By 1980, 50 percent of all materials tests should be nondestructive.

NBS expects to accelerate its studies on the properties of materials in unusual and hostile environments in an attempt to give American engineers the information they need to make key decisions in designing and building for the future.

The solution to many of the nation's problems in transportation, health, safety, energy and environment is dependent on improved or increased automated control. NBS will continue to encourage the development of the needed computer and dynamic measurement technology.

NBS is also taking the lead in applying computers to substitute for brute force and to remove people from hazardous work situations.

The Bureau has begun to play a stronger role in testing and evaluation of consumer products to provide more concrete information to help the consumer make more informed purchases. NBS hopes to produce the definitive "handbook" on consumer product safety and transmit it to the manufacturing community so safer products can be designed.

Accuracy: a continuing need

In the numerous areas where improved technology will provide assistance to American commerce and industry—such as building technology, law enforcement and international standards—the need for accurate measurement will remain. NBS will continue to support the measurement needs of the country by addressing measurements of higher reliability as well as high accuracy. NBS will strive to close the gaps in our national measurement system, and continue to update it into the future.

As NBS enters its 75th year as a unique and versatile national resource, it looks at ways to encourage better business science and technology, more efficient delivery of public services, and the improvement of resources.

As the country grows in technological sophistication, new measurement problems will appear. The National Bureau of Standards will respond.

WHAT IT'S ALL ABOUT—*The American consumer is the ultimate beneficiary of all National Bureau of Standards activity. Flammability standards for children's sleepwear have helped cut fire injuries and deaths among young Americans.*

30 Million Visitors Will Help U.S. Celebrate 200th Birthday

The British are coming!—and the French, the Mexicans and the Japanese as well—to help the United States celebrate its 200th birthday.

More than 30 million international visitors are expected to travel in the United States during the 1975-76 Bicentennial celebration—more foreign vacationers than in any other two-year period in the nation's history. These Bicentennial guests are expected to spend as much as $12 billion during their visits to this country.

To help the United States get ready for them, Commerce's United States Travel Service has established a number of programs, and expanded some existing ones.

"We want our Bicentennial guests from abroad to view this two-year period as a unique opportunity to sample what America offers its visitors, and not just in terms of a 200-year history," comments David N. Parker, Acting Assistant Secretary of Commerce for Tourism.

"Millions of people around the world want to vacation in the United States 'someday.' We are portraying the Bicentennial as an added reason to decide to visit this country in 1975 and 1976," Parker added.

"Even if tourists from abroad never visit the historic landmarks associated with our early history, we believe that in all corners of the country they will find America and Americans at their best during the celebration."

USTS is promoting international travel to the United States during the Bicentennial through a series of programs including advertising, sales development, public information and tour development.

Under the agency's integrated marketing plan, these programs are implemented by USTS offices in Canada, Mexico, Japan, the United Kingdom, France and Germany.

New ad campaign

To spread the Bicentennial message, USTS has designed advertising campaigns tailored to each of these six nations. Celebration aspects of the Bicentennial are featured, with focus on the diversity of events that will occur, the excitement which will be generated by these events, and the affordability of U.S. vacation travel.

Two special Bicentennial posters in different languages have been distributed abroad and a publication listing Bicentennial events and local festivals will be circulated in the six nations.

Working with the trade

USTS' sales development program is generating additional interest in travel to the United States during the Bicentennial through travel trade sales calls and travel agent training seminars abroad.

Bicentennial information is available to prospective U.S. vacationers through USTS' unique network of 713 Travel Planning Centers in the six countries. These are leading retail travel agencies that have VISIT USA specialists.

USTS established the network last year to serve as VISIT USA information and sales offices. In preparation for the Bicentennial, USTS is conducting special training for Travel Planning Center personnel and providing up-to-date information on Bicentennial activities.

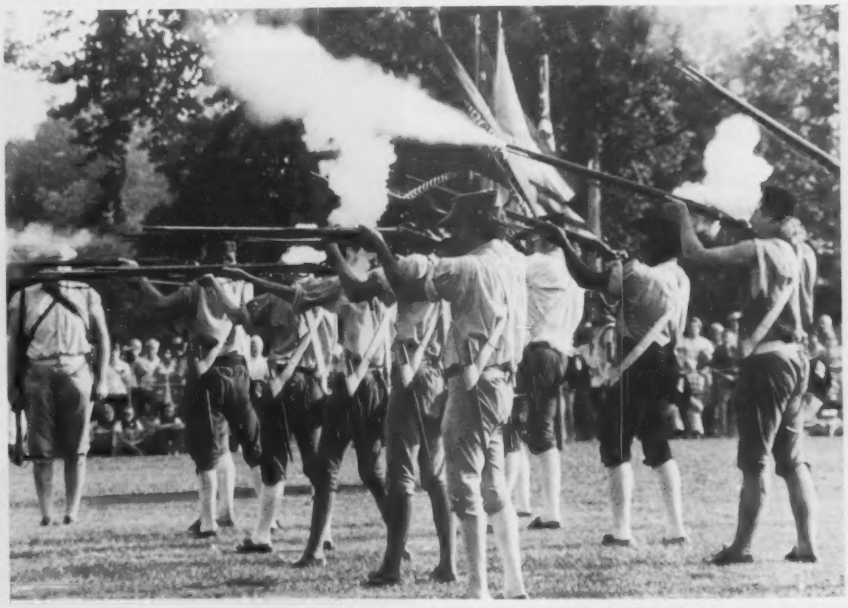
Bicentennial information will also be introduced to travel agents abroad during 150 scheduled seminars and an estimated 15,000 sales calls on the travel trade during fiscal year 1976.

In Mexico, for example, USTS staff members will conduct four seminars on Bicentennial Focal Points in the coming months. More than 200 Mexican travel agents will learn about Bicentennial programs through these seminars.

Reaching the public

Bicentennial information will be featured in specially prepared destination articles provided by USTS and published in major magazines and newspapers in the six nations where USTS concentrates its efforts. This year, a series of special articles will focus on Bicentennial events and points of interest.

USTS distributes abroad brochures,



TAKING AIM—*A recreation of a Revolutionary War period Militia Muster is staged for the benefit of tourists to Williamsburg, Va., a restored 18th century American town.*

news releases and other editorial material supplied by regional, state and local tourism offices and Bicentennial groups.

Complementing the editorial material, USTS also conducts journalist familiarization tours for foreign travel writers, so they can experience firsthand this nation's wealth of tourism destinations.

This year, journalist familiarization tours feature Bicentennial themes. A "Bicentennial Curtain-Raiser" tour conducted earlier this year, for example, included visits to Washington, D.C., Boston and New York City.

Interviews with key tourism and Bicentennial officials gave newsmen a preview of our nation's 200th anniversary celebration. Their resulting coverage in newspapers, magazines and air media are expected to heighten interest in travel to this country in 1975 and 1976.

Serving the visitor

Equally important to programs promoting increased international tourism during the Bicentennial Era are receptive service programs designed to insure that visitors to this country receive a warm welcome.

USTS sponsors and conducts a variety of these programs designed to overcome such obstacles to travel as language barriers.

To assist non-English-speaking visitors arriving in the United States, USTS instituted a corps of multilingual Visitor Services Representatives at 10 major international airports. International visitors arriving at airports in New York, Seattle, San Juan, Philadelphia, Miami, Boston, Chicago, San Francisco, Los Angeles and Washington, D.C. (Dulles) are greeted by these distinctively-uniformed, multilingual receptionists.

These Visitor Services Representatives assist visitors in their own languages, help them complete U.S. entry formalities, and can answer questions on such topics as ground transportation and accommodations.

USTS, in cooperation with the Department of Transportation, encourages the use of international symbol signs at major airports. These graphic symbols help non-English-speaking visitors locate such necessities as restaurants, rest rooms, baggage areas, public transportation and telephones.

USTS, in cooperation with Mobil Travel Guides, has expanded its bilingual hotel certification program in preparation for the Bicentennial. USTS recognizes those hotels and motels with personnel who can assist visitors speaking French, Spanish, German and Japanese.

Several thousand such accommodations have been identified and are designated as bilingual in current editions of the Mobil Travel Guide. USTS publicizes the bilingual hotel program abroad in its continuing efforts to relieve the language fears of potential travelers to the United States.

Another program designed to aid visitors in need of language assistance is TravelPhone USA, sponsored by USTS and TraveLodge International. By dialing a toll-free number, international visitors are put in touch with one of 10 multilingual operators who speak German, French, Spanish and Japanese. The operators are prepared to answer tourism-related questions, as well as to offer emergency service if necessary.

The agency also conducts programs designed to encourage the U.S. tourism industry and the American public to be better hosts to international visitors. Such efforts are particularly important because of increased foreign tourism expected during the Bicentennial era.

USTS recently published *Action Guide: Serving the International Visitor*, a booklet describing existing programs available to international visitors. Detailed information is provided on transportation, accommodation, translation and emergency programs operated by governmental and private organizations which can assist other groups in the United States in initiating their own visitor assistance programs.

USTS has distributed 20,000 copies of the booklet to state and city tourism offices, travel industry representatives and volunteer groups serving foreign visitors. A 30-minute companion film is also available to these groups, and a shorter version of the film is being shown as a short subject in commercial movie theaters across the nation.

"The promotional and receptive services programs conducted by USTS offer international visitors a unique opportunity to join in the national anniversary celebration and to explore the United States at a special moment in America's history," Parker said.

"And Americans will have an opportunity to learn more about the people of other nations through contact with these guests from abroad. More than any actual festival or event, this interaction on a people-to-people level is in the true spirit of our Bicentennial observance."

BIRTHDAY INVITATION—*The 50 states are beckoning stars to foreign tourists from this red, white and blue poster issued by the United States Travel Service.*

BICENTENNIAL DATA—*More than 125 Japanese travel agents and travel planning specialists attended a Bicentennial seminar sponsored by the United States Travel Service.*

From Trade Routes To Newly-Found Resources, Charts Show The Way

Sometime during the coming Bicentennial year, the National Ocean Survey, an arm of Commerce's National Oceanic and Atmospheric (NOAA), will issue its one billionth navigational chart publication. Plans are being drawn up to properly observe the event.

Charts have been issued by the National Ocean Survey and its predecessor, the Coast and Geodetic Survey, since its creation February 10, 1807, when President Thomas Jefferson signed the authorizing bill which Congress had passed a short time before.

The Survey plans in future as in the past to broaden its operations and to improve its techniques and methods to keep pace with the latest developments in commerce and industry and to meet the demands of national defense.

In addition to the issuance of its billionth navigational chart, NOAA is issuing in honor of the Bicentennial a limited number of engraved prints and nautical charts produced from original copperplates dating back to 1845. There are 45 of the charts covering areas in 22 coastal states, the District of Columbia and Puerto Rico. The engraved prints are individually numbered and suitable for framing. They are offered as collector's items, with a certificate of authenticity accompanying each copy.

Special catalog

In addition, an unlimited number of lithographic prints are being issued. A special Bicentennial catalog illustrates the prints available, together with instructions for ordering them.

The original engravings are kept in a repository by NOAA. From 85 to 200 engraved prints of each chart have been run off, with a total of 9,350 prints available for purchase. When these have sold, the copperplates will be returned to the repository where they will remain as treasured records of a vanished art.

Copperplate engravings were used by the Coast and Geodetic Survey from the days before the Civil War to the 1920s for printing nautical charts. Since then, offset lithography has been used for cartographic reproduction.

The special Bicentennial issue may be the last reproductions made from the original copperplates, although modification of the printing technique now insures little damage to the plates.

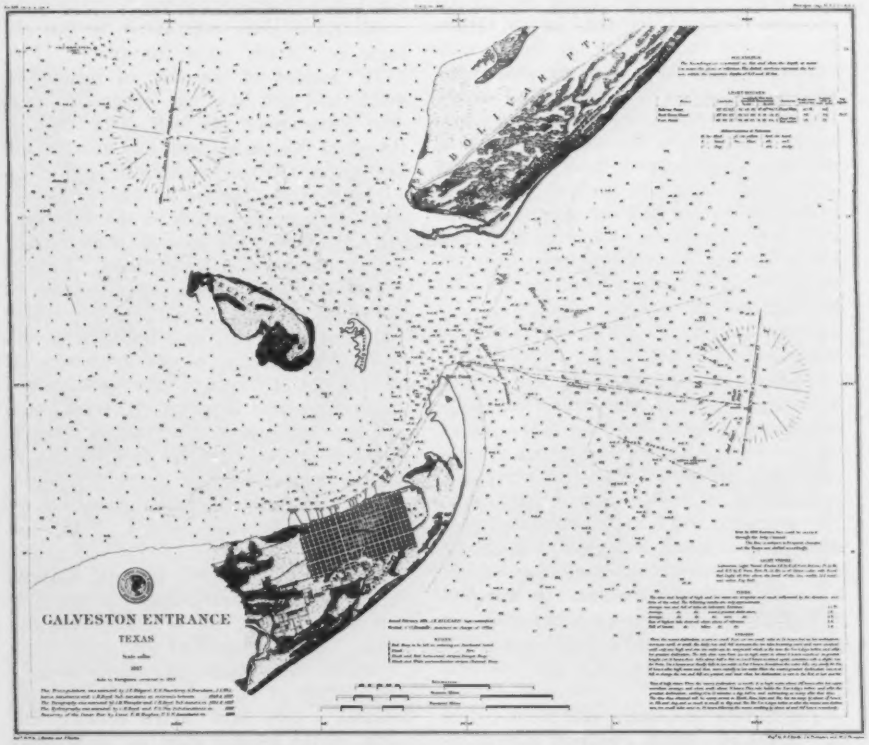
NOAA explains that the nautical charts of a century or more ago are works of art. The charts portray the earliest known technique of engraved three-dimensional effect, created by the artist's painstaking etching of shaded relief. Its practitioners were skilled artists. Among them was the famous artist James McNeill Whistler.

In addition to offering one chart of each coastal state, the issue also portrays prominent coastal sites, such as Cape Hatteras, Cape Cod, San Francisco Bay, Galveston Bay, Puget Sound, Strait of Juan de Fuca, Plymouth Salem Harbor, Nantucket, Long Island Sound, Staten Island, New York Harbor and the Philadelphia waterfront.

Also included among the engravings are prized reproductions other than nautical charts. Among them is the Ellicott Map, the first official map of Washington, D.C., 16 of the most interesting federal landmarks in the nation's Capital as they appeared in 1856, and an 1879 map, available only as a lithographic print, of George Washington's birthplace in Westmoreland County, Virginia.

The main services of the Survey are nautical and aeronautical charts, which are basic tools in maintaining the nation's air and sea transportation systems. In addition to being indispensable to the aviation and maritime industries, these charts and technical services are requisites in planning and operating extensive programs in other forms of communication, development of natural resources, hydrography, agriculture and reclamation, public works and urban planning, and other programs affecting economic development.

Thus the Survey is a basic means for



MARINERS' TRUSTY GUIDE—*This is how the harbor of Galveston, Texas, looked to navigators of the 1860s. Bicentennial copies of 45 old charts are being issued.*

promoting, fostering, and developing the industry and commerce of the U.S. The areas which it supports are aviation, the maritime industry, recreational boating, fishing, and the petroleum, transportation, and construction industries.

Nautical charts are vital in safeguarding the huge volume of water traffic against thousands of dangers that beset shipping. The dangers along the coasts include rapid tides and eddies peculiar to the American seas and strong alongside currents. To supplement the nautical charts the Survey publishes coast pilots, tide tables, tide current tables, and tidal charts. These services are also important in establishing marine insurance rates. Adequate surveys also indicate the shortest safe routes, close to shore, for moving cargoes between ports, and this is a considerable economic advantage.

Aeronautical charts support air commerce and civil aviation with the same standard of accuracy and efficiency as found in the nautical charts, and for which the Survey is famous in the affected industries. Air cargo carriers require that official distances between airports be determined as a basis for ratemaking. The carriers are also provided by the Survey with detailed information concerning the obstructions, length of runways, and other important data concerning airports to determine safe takeoff capacities of loaded transport planes.

The discovery and development of new oil-bearing regions are aided by special services rendered by the Survey. Basic triangulation and leveling lay the groundwork for subsequent geologic and topographic mapping in potential oil areas. Important to the discovery and development of petroleum resources are the production of sea-bottom (bathymetric) and planimetric maps in coastal areas and hydrographic surveys in offshore areas and estuaries along the seacoasts and Great Lakes. Photogrammetric surveys, coordinated with tidal observations and leveling, aid in location of drilling sites and indicate allowance to be made for tidal conditions.

The geodetic program of the Survey, including the development of state plane coordinate systems, has contributed greatly to surveying practices throughout the nation, and provides control for mapping, engineering planning, and construction. For example, the Survey established geodetic control along several thousand miles of new highway construction under the Interstate Highway program. In the construction industry, many cities rely on geodetic surveys as a basis for large-scale mapping of both the city and outlying areas.

The Survey maintains the NOAA fleet of 26 vessels which conducts ocean research and hydrographic surveys in coastal waters and the deep sea.

BIG THREE—*National Bicentennial coin design winners hold replicas of their winning designs: From left, Jack L. Ahr, Arlington Heights, Ill.; Seth G. Huntington, Minneapolis, Minn.; and Dennis R. Williams, Columbus, Ohio. Coins will be minted through 1976.*

Coins Reflect Bicentennial Theme

In honor of the Bicentennial, the Bureau of the Mint of the Department of the Treasury is making appropriate changes in the appearance of three coins: the dollar, half dollar and quarter.

All three coins will show on the obverse or "heads" side the years "1776-1976" instead of the year of issue. The dollar will still bear the image of President Eisenhower, the half dollar that of President Kennedy, and the quarter the likeness of George Washington.

However, the reverse or "tails" side will show designs distinctive to the Bicentennial. The dollar will have the Liberty Bell against the moon as background. The half dollar will glow with a representation of Independence Hall and will bear the words "200 Years of Freedom." The quarter will have the figure of a colonial drummer and a circle of 13 stars enclosing a torch, which represents freedom. All three coins will bear the words "E Pluribus Unum" on the reverse side and "In God We Trust" on the obverse side.

The new designs are to appear only on coins issued between July 4, 1975, and January 1, 1977.

Beginning July 7, the Federal Reserve System will start distributing the new half dollar. The other two are scheduled for release before the end of the year.

"To me these coins—like all our coins—are symbols of our nation's 200 years of freedom," says Mrs. Mary Brooks, Director of the Mint. "They are small links with our historical and cultural heritage that will touch the hands of every man, woman, and child in the United States.

" 'Liberty!' was the rallying cry of the American Revolution—and 'Liberty' has been proclaimed and inscribed on each coin since the creation of the mint in 1792."

The new coin designs represents an expression of the patriotic sentiments of grassroots America. They were selected in a national award competition sponsored by the Treasury Department, which awarded $5,000 to each of the winning designers.

Dennis R. Williams, who designed the Liberty Bell and moon for the dollar, is a sculpture student at the Columbus College of Art and Design at Columbus, Ohio.

Seth G. Huntington, of Minneapolis, Minnesota, executed the design for the half dollar. He is a graduate of Minneapolis College of Art and Design and served on the faculty of the St. Paul Arts and Science Center. His experience as an artist and designer has been in corporate design, educational materials, book illustrations and advertising and display.

Jack L. Ahr, of Arlington Heights, Illinois, designed the colonial drummer for the quarter. He has his own company in Arlington Heights. The company specializes in the design of custom products, such as sales and employee incentive awards.

Special 40 percent silver specimens of the Bicentennial coins are being made available. For details, write to the Bureau of the Mint, 55 Mint Street, San Francisco, 94175.

Industry Highlights

Leather Industry, A Leader In 1776, Expects Rejuvenation

(Industry Highlights is prepared by the Office of Business Research and Analysis, Bureau of Domestic Commerce.)

With the approach of the U.S. Bicentennial, the leather industry of America, which is more than 200 years old, faces it brightest prospects in generations, according to Myrtis Byrnes of the Bureau of Domestic Commerce.

Factors contributing to the improved outlook for American tanners include:

- The advantage of tremendous raw material resources from a record U.S. cattle herd. With the number of cattle in the United States continuing to grow, U.S. tanners will be able to expand operations and meet rising world demand for leather.
- Recent years have demonstrated an extraordinary trend in consumer demand. Increasingly, value and quality-conscious buyers are turning to the natural and the genuine. Few products compare with leather in those respects for footwear and for personal accessories.
- Technology has added new dimensions to the leather outlook. American tanners have found the means of producing light-weight, supple garment leather from cattlehides. The resulting material made available to apparel manufacturers compares with the finest leather once produced only from imported kid and goat skins. Hence, in both the United States and abroad the production of leather garments has been given greater impetus and a huge new market for leather has come into being.
- Many other technical achievements during the past decade have enhanced the value of U.S. leather and leather products.

Indians knew how

Historical data do not agree as to exactly where leather was first produced by the settlers in what is now the United States. It is possible that Experience Michell, a tanner, who arrived at Plymouth on the ship Ann in 1623, may have tanned leather before the settlers in Jamestown, Virginia, who had come to America several years earlier. However, native Indians were tanning pelts which they then used for clothing, shelter, bedding, footwear and other purposes when the first settlers reached the shores of North America.

In those early days the raw skins used to produce leather were from native wild animals such as deer, elk, pig, horse, and pony, a by-product of man's quest for meat. Today the raw materials are still by-products, and skins from exotic wild animals continue to be processed, but mostly the hides and skins are from domesticated animals which are raised for meat supply. Prior to 1800 most of the operations in tanneries were accomplished by hand. It took six months or longer to process hides; now this is possible in a matter of days.

By 1750 there were about 1,000 tanneries operating in the Colonies and the value of their production was estimated at $10 million. As the Colonies grew and the demand for leather increased so did the number of tanneries. By 1800 there were 2,400 of them, with a value of production estimated at $11 million.

By 1850 the number had grown to 6,644. The value of their products was about $41.5 million and the plants employed 25,595 people.

U.S. hit top in 1850

Also by 1850 the United States had become the world's leading producer and consumer of leather and leather products, a distinction it has never lost to this day. The number of tanneries and workers has continued to decline to the point that in 1975 there are less than 500 establishments and about 20,000 production workers (from an 1899 high of more than 52,000). However, the value of their output has risen steadily to more than $1.1 billion, and wages in the industry have increased to over $30 million.

The early American tanners were responsible for the invention and development of machinery and equipment which transformed leather tanning from a mere craft occupation to a commercial industry.

Also, the development of the railroad meant it was no longer necessary for tanneries to be dismantled and moved to the source of raw materials—these could now be shipped to the tannery and finished leather could be shipped out.

Shortly after 1800, a Massachusetts tanner, Samuel Parker, was issued a patent for a splitting machine which could split a hide to almost any desired thickness. This invention enabled tanners to practically double their output immediately.

In 1850, a Maine tanner, Mellen Bray, solved the problems of cleaning, fleshing and dehairing hides with a single machine. Later, separate machines were developed for doing each of those operations more thoroughly. Very recently, in place of the traditional drums, the U.S. tanning industry has adapted the principle of the concrete mixer, on a much larger scale, for the automated output of leather.

American tanners also have refined the concept of rapid processing, of vacuum

BRINGING IN THE HIDES—*Miles Standish beckons to Indians carrying deer hides as Experience Michell, Plymouth Plantation's first tanner, cleans a hide preparatory to drying. Leather officials predict a return to prominence for their industry.*

drying, and polymerized finishes. These technical advances have made possible the production of leather in greater quantity, more quickly and at much lower cost.

Hardly a U.S. tannery is without its own chemist today, and the U.S. leather industry sponsors and maintains at the University of Cincinnati the Tanners' Council Laboratory to assist U.S. tanners in increasing and improving their leather production.

However, the American tanner has been threatened with extinction several times in recent years; he has faced one raw material supply problem after another; he has had nagging pollution problems with which he must cope; he has been hurt by the introduction of a series of manmade materials in the production of shoes; and, most important, he has watched the erosion of his domestic market by imported leather and leather products.

The U.S. consumer's appetite for beef appears insatiable. One of the important direct results of satisfying that appetite is the world's largest supply of cattlehides—some 36 to 38 million annually—for the leather tanning and finishing industry. Currently only 50 percent of these are processed domestically; the remainder are exported.

Twice in recent years a very sharp inincrease in exports of cattlehides resulted in sharply increased hide prices and ultimately in the temporary imposition of short supply export controls.

Denied equal access

The generally free access to the U.S. raw hide and skin supply by foreign tanners, while at the same time U.S. tanners are denied equal access to foreign raw skins is one of the primary concerns of the U.S. leather tanning industry.

Despite the large domestic supply, to meet the total demand for leather products America must import a substantial supply of its requirements for many types of hides and skins. For example, goat meat is not a favorable dish for most Americans, so to produce kid leather the U.S. has been dependent on imports for about 99 percent of its goatskin requirements. As recently as 1950, U.S. tanners imported and processed more than 40 million goatskins. Today, because of restrictions by supplying countries, less than four million goatskins are being processed in the United States each year.

The availability of foreign raw skins, or the lack of it, has contributed significantly to the shrinkage in the number of U.S. tanneries and in the quantity of hides and skins processed.

Progress often brings problems, and the tanning industry has had its share in its efforts to comply with local, state and federal laws and regulations pertaining to pollution control. Federal legislation imposed by the Environmental Protection Agency to control tannery effluent requires the complete elimination of all industrial and municipal pollutant discharges to lakes and streams by 1985. A number of tanneries are now equipped with the "best practicable control technology" currently available, but for some the cost of meeting requirements for pollution abatement and control was far more than foreseeable profits warranted spending.

Currently, the Tanners' Council of America, the national trade association for the leather industry, has a suit pending to test the legality of certain standards promulgated by EPA for the leather tanning and finishing industry.

The footwear industry has always been the largest consumer of genuine leather. World War I saw a drastic reduction in the use of leather for soles. Following World War II, with living standards improving throughout the world it seemed certain that the world's limited supply of raw hides and skins could not possibly fill the rapidly rising demand for leather shoes. As a result, a host of manmade materials for shoe uppers were developed.

U.S. production of shoes (not including rubber) reached a peak of 642 million pairs in 1965. Twenty-five percent of these had leather soles and about 80 percent had uppers of leather or part leather. Of the total shoe production of 444 million pairs of nonrubber footwear in 1974, only 15 percent had leather soles and only about 50 percent had leather uppers.

Until about the mid-1950s, with some interruptions during war years, the U.S. had a favorable balance in trade in leather. However, in 1955 the value of U.S. leather imports exceeded that of exports and this situation prevailed through 1974. The United States is the largest leather consuming country in the world and foreign tanners are attracted to this market. In 1974, there were 77 countries that purchased American leathers valued at $102 million. In the same year, Americans purchased leathers from 60 foreign countries to the value of $125 million.

In addition to servicing the needs of manufacturers at home and in other countries for finished leathers, U.S. tanners have launched the extensive production of semi-finished leather for fast and economic transportation abroad. They seem to be meeting with some success, according to foreign trade data for the first four months of 1975—the value of leather exports more than one and one-half times greater than the value of imports.

American tanners feel certain that the basic article of export commerce for the U.S. industry in the future will be semi-finished or finished leather, rather than raw cattlehides.

The footwear industry continues to be the largest consumer of leather, but the leather garments industry is taking an increasingly larger share as young America, in its love affair with this authentic natural material, has reawakened the country to the natural beauty of real leather. Leather plays a key role in production of handbags, wallets, belts, dress and work gloves, and in baseballs, footballs, basketballs, and other sports. Fine automobiles have leather upholstery and many offices are being decorated with leather paneling.

Some U.S. tanners promise that genuine leather will be even more important in the next 200 years.

Calendar For Businessmen

July 10-11—San Francisco — Remedies for Breach of Contract seminar, St. Francis Hotel. For details, Practising Law Institute (212-765-5700).

July 14-16—Washington—Effective Administrative Writing seminar, Georgetown Univ. For information, Ms. Betsy Girton, Continuing Management Education — SSCE, Georgetown Univ., Washington, D.C. (202-625-4353).

July 15-17—Washington — Communication Skills for Managers, Georgetown Univ. For information, Ms. Betsy Girton, Continuing Management Education—SSCE, Georgetown Univ., Washington, D.C. 20057 (202-625-4353).

July 23-24—San Francisco — Consumer Energy Workshop sponsored by FEA's Office of Consumer Affairs and Special Impact. Contact: Gerry Jackson, 202-964-4781.

July 24-25 — Atlanta — Remedies for Breach of Contract seminar, Stouffer's Atlanta Inn. For information, Practising Law Institute (212-765-5700).

July 28-Aug. 1—Los Angeles—International Solar Energy Society biennial conference, UCLA. For information, E. L. Ralph, Spectrolab, 12500 Gladstone Ave., Sylmar, Calif. 91342 (213-365-4611).

July 29-31—Anaheim, Calif. — Western Packaging EXPO, Convention Center. For information, Clapp & Poliak, Inc., 245 Park Ave., New York 10017 (212-661-8410).

July 31-Aug. 1—New York—Construction Contracts seminar, Barbizon Plaza Hotel. For information, Practising Law Institute (212-765-5700).

Aug. 3-6—Duluth, Minn.—National Assn. of Development Organizations annual conference, Radisson Hotel. For information, NADO (202-466-2155).

Many Bicentennial Projects Still In Need Of Funding

Corporate support of major Bicentennial projects proposed by the American Revolution Bicentennial Administration (ARBA) has fallen "far short of the need," according to John W. Warner, ARBA Administrator.

While many of the nation's major corporations have already pledged handsome sums toward some of these projects, there are others which may have to be cancelled or moderated.

"In order for the Bicentennial to realize its full potential as a participatory experience," says Warner in a recent letter to American corporation executives, "the human energy which is being expended in development of programs must be combined with corporate support . . . in the spirit of '76."

Below are some of the major programs still requiring funding:

American Freedom Train—While already embarked on its round-the-country schedule, this train carrying displays representing the American heritage is still shy the necessary dollars. General Motors, Kraftco, Pepsico, Prudential and Atlantic Richfield are some of the original contributors.

All Indian National Finals Rodeo—As a tribute to America's first "cowboy," a national rodeo championship will be held in a major western city. Competitions in traditional Indian dances, ceremonial programs, arts and crafts, and varying cultural displays will also be featured.

American Bicentennial Wind Symphony Orchestra—An exciting concept of a Floating Arts Center will bring a 45-member woodwind, brass and percussion group to at least 76 cities along the inland waterways in the United States, Mexico and Canada. The Center will include a theater, studio, concert hall and other facilities. Artists will travel with the orchestra and provide free workshops in painting, sculpture, dance, film and theater as well as participate in discussions and symposia. Slightly more than half the necessary funding has been raised.

The American Bicentennial Wing of the Metropolitan Museum of Art—Scheduled to open in July 1976, this wing will house the most comprehensive collection of American art in existence. Included will be a Frank Lloyd Wright living room, a sculpture garden, paintings, furniture, silver, glass, textiles, ceramics and 25 period rooms reflecting 200 years of American art. More than two-thirds of the expected cost has been received.

The American Farm Traveling Exhibition of California—The California Historical Society has put together an exhibit revealing the history of American agriculture to the general public around the United States. The Rockefeller Foundation and the National Endowment for the Humanities have already contributed to the exhibition.

America's Inventive Genius—This exhibit on the history, developments and contributions of America's science, technology and industry comes from the Chicago Museum of Science and Industry. A series of films on significant inventors, scientists and industrial innovators will also be shown.

Bicentennial Horizons of American Music—Scheduled for St. Louis in the summer of 1976, this multifaceted arts happening will include performances in music, film, theater and dance. Other activities include symposia on the development of American culture, a national contest for student composers and a three-day program on American Indian culture.

Bicentennial Wagon Train/Trail Riders Pilgrimage—Replaying history in reverse, the Wagon Train Pilgrimage will cross the United States from west to east during the Bicentennial year. Each state will have its own covered wagon which will tour its home state, and join the National Wagon Train to continue on its journey to Valley Forge, Pa. The pilgrimage will be divided into several segments, to follow such well known historic routes as the Oregon, California, Mormon, Sante Fe, and Natchez trails.

'BICEP' Bicentennial Environmental Project—Six vocational student organizations are cooperating to improve the nation's social and physical environment. Project themes include highway safety; crime prevention; clean-up campaigns; consumer protection; aid to poverty stricken, sick and unemployed citizens; and the importance of vocational education.

Bikecentennial '76—Geared to the large number of Americans and international tourists who use bicycles for transportation and recreation, Bikecentennial '76 offers a "Trans-America Bike Trail." Extending from the Oregon coast to colonial Virginia, the trail covers lightly traveled backroads, and parallels or crosses such historic trails as the Chisholm and Sante Fe. Some 30,000 riders are expected to participate.

Committees for Resource Recovery—Some 1,200 environmental and community groups in New Jersey and California are working with industries and government agencies to encourage the recovery of reclaimable materials from solid waste loads. The Committees provide educational materials, publicity aids, detailed cost analyses and support for organizations and communities interested in recycling wastes.

Green Survival for the Third Century—The American Association of Nurserymen is encouraging all Americans to plant trees, shrubs, grass and other ground covers to decorate the United States for the Bicentennial. Wider goals include: help purify the air, stabilize the soil, clarify the water, abate noise and reduce the ugliness of our surroundings.

Innovation and Diversity in American

READY TO ROLL—*Fifty covered wagons, one for each state, will cross the United States from west to east and converge on Valley Forge, Pa., in July 1976.*

BICENTENNIAL ACTIVITIES—*Bikecentennial '76 (above) will see thousands of bicycle riders following a new trail across the United States that will parallel many historical routes. The 45-member American Wind Symphony Orchestra (below) will bring its Floating Arts Center to 76 cities along the inland waterways in the United States, Mexico and Canada.*

Culture—A series of exhibits demonstrate the process of cultural interchange between the Old World and the New in the past two centuries. Museums of science and technology throughout the United States will display the exhibits during 1976-77. The project was designed by Dr. Jacob Bronowski.

International Syncon Conference—A four-day conference in October 1975 will deal with the problems of energy, inflation, food, water and economic development. At least 500,000,000 people around the world are expected to watch on global television as the program is beamed via COMSAT and INTELSAT, probably from the Kennedy Space Center at Cape Canaveral. Arrangements are being made to accommodate telephone calls from all over the world, so that people listening can have immediate input. Full funding is needed.

Mobile Health Fair Program—Week-long health fairs are scheduled to visit communities in eight states to provide information and assistance to disadvantaged Americans. The fairs will be staffed by a full-time coordinator, a medical student and a pre-med student, and a volunteer team consisting of a physician, a nurse, a dentist and trained youth and adults. The fairs will provide medical services and screening tests along with colorful games and exhibits to make health instruction graphic and entertaining. More than half the necessary funding has been received.

Museum-Library Complex of Kittery, Maine—The Maine State Museum is directing this project to search for and identify wreckage of 40 American vessels sunk during the Revolution's worst naval disaster—the 1779 Penobscot Expedition. The project will cover documentation, recovery, restoration and preservation of artifacts from the abandoned ships. Recovered articles will be displayed and exhibited around the country.

"Operation Sail '76"—More than 30 major sail training ships from around the world will race to Newport, R.I., to celebrate the Bicentennial. Vessels from England and Europe will sail first to Bermuda, where they will be joined by ships from Australia, Latin America, the Far East, Canada and the United States. After arriving in Newport, the ships will parade to New York for the Fourth of July festivities, and then on to the Great Lakes and the Gulf and Pacific coasts.

Reading is FUN-damental—This national program is designed to motivate children to read by showing them early in life that reading is fun, not a chore. The program hopes to double the number of its participants to 5 million in all 50 states, the District of Columbia, Puerto Rico and the territories by the time of the Bicentennial. A guide to books relevant to the themes of the Bicentennial will be distri-

buted to children in the program.

The Role of Blacks in U.S. Economic Life—Black Enterprise Magazine and the Minority Business Information Institute will present an audio-visual exhibition that will show the position of Blacks in American business, how they got there, how the government contributed and who opened the doors to opportunity in business. During 1976 the exhibit will travel to the country's 20 largest cities, and will be on permanent display thereafter in a major urban center.

Sister Cities Project—More than 50 million Americans in some 420 U.S. cities participate in Sister Cities International, which promotes an exchange of people, ideas and things among cities all over the world. The goal of this project is to increase U.S. Sister City applications throughout the world to 1,776 at the beginning of 1976, and to 1,976 by the end of the Bicentennial year.

World Food Conference—A United Nations Conference expected to attract more than 1,000 scholars, scientists and students from all over the world will be held in 1976 at Iowa State University in Ames. During the five-day conference, participants will exchange information dealing with the production, processing, distribution and utilization of the world's food. Full funding is needed.

Industrial heritage portrayed

But fortunately, one outstanding exhibit has already been fully funded. This is **Industrial Heritage USA,** a traveling exhibit portraying America's industrial heritage that is being shown at shopping malls in major population centers across the 48 contiguous states during 1975 and '76. The entire cost of the project has been assumed by the Henry Ford Museum, Greenfield Village, Mich., and 26 corporate sponsors. During the summer the exhibit will be displayed at the Henry Ford Museum.

Among the historic artifacts that will be displayed in the exhibit are: a plate and wine glass used by George Washington during the Revolutionary War and a campfire cook-stove used by his troops; White House china used by Abraham Lincoln and his family; Thomas Edison's first phonograph; several of Benjamin Franklin's inventions; and other items.

Corporate sponsors of Industrial Heritage USA are: Addressograph Multigraph, Allis-Chalmers, Armstrong Cork, Bobbie Brooks, Inc., Celanese Corp., Coca Cola, A.T. Cross Co. and Dupont.

Also Eastman Kodak, Eaton Corp., Franciscan Co., General Electric, General Time Corp., International Harvester, Kinney Shoes, Kohler Co. and Levi Strauss.

Other sponsors are McDonnell Douglas, Pennzoil, Procter & Gamble, Rockwell International, Simplicity Patterns, Tappan, U.S. Steel, Western Electric and Zenith.

A New Flag For U.S. To Rally Around

In announcing the policy and guidelines for use and display of the official national Bicentennial flag, John W. Warner, Administrator of the American Revolution Bicentennial Administration (ARBA), said, "It is my fervent hope that the Bicentennial flag will fly from every building, house and flagpole in the country to proclaim our nation's 200th anniversary.

The flag is white in background with the national Bicentennial symbol in the center. The symbol takes the form of an American five-pointed star in white, surrounded by continuous red, white, and blue stripes which form a second star.

Authorized users who may display the flag under the ARBA policy are:

- Any organization, company, corporation, or individual located in or participating in any of the following Bicentennial activities: Bicentennial Community, Bicentennial College or University, or Bicentennial Armed Forces Installation.
- All programs and events which have earned official recognition.
- Overseas Bicentennial projects officially recognized by the ARBA.
- Executive, Judicial and Congressional divisions of the U.S. Government.
- All Federal Government departments and agencies throughout the world.
- All State Governments.
- State Bicentennial Commissions, including the Commonwealth of Puerto Rico, the Territories, and the District of Columbia.
- Members of the National Bicentennial Service Alliance. Local chapters may use the flag in connection with their support of Bicentennial programs of their national organizations or through participation in the Bicentennial Communities Program.
- Members of the National Bicentennial Hospitality Alliance.
- Special events which contribute to Bicentennial, when specifically authorized by ARBA.

The Bicentennial flag may be flown by authorized users anywhere that the American flag is flown under established flag protocol. When the two are flown together, the Bicentennial flag is immediately subordinate to the American flag, second in ranking in any flag display.

Authorized ARBA flag sizes for both indoor and outdoor use are 2 by 3 feet, 3 by 5 feet, 4 by 6 feet, and 5 by 8 feet.

Flags larger than 5 by 8 feet are authorized; however, they are available only upon special order from officially licensed flag manufacturers:

- Collegeville Flag and Mfg. Co.
  Fourth Ave.
  Collegeville, Pa. 19246
  (215) 489-4131
- Valley Forge Flag Co.
  One Rockefeller Plaza
  New York, N.Y. 10019
  (212) 586-1776
- Dettra Flag Company, Inc.
  Oaks, Pa. 19456
  (215) 665-5050
- Annin and Co.
  163 Bloomfield Ave.
  Verona, N.J. 07044
  (201) 239-9000
- Betsy Ross Manufacturing Co.
  41 Brook Ave.
  Passaic, N.J. 07055
  (201) 773-3388

Official Trade Briefs

This article is another in a series of reports that describe actions affecting world trade, as compiled by the Legislative and Tariff Policy Division of the International Economic Policy and Research Staff's Office of International Trade Policy.

THE CONGRESS

Committee Hearings—Senate: The Committee on Finance began hearings June 6 on S. Concurrent Resolution 35, approving a bilateral commercial agreement between the United States and the Socialist Republic of Romania.

The Subcommittee on Multinational Corporations held numerous hearings in connection with political contributions made by U.S. companies in foreign countries.

Committee Hearings—House: The Committee on Ways and Means began hearings June 23 on comprehensive tax reform legislation. The hearings will deal with reform of numerous provisions of U.S. tax laws, including tax treatment of foreign income. Some of the major provisions that will be considered include Western Hemisphere Trade Corporations, tax deferral under Domestic International Sales Corporations (DISC), and tax treatment of corporations based in U.S. possessions. The Committee will continue the hearings through July, and hopes to begin markup of a draft tax reform bill early in September.

The following subcommittees of the Committee on International Relations held hearings in June:

The Subcommittees on International Trade and Commerce and International Organizations held a joint hearing June 11 on the U.S. trade embargo of Cuba. International Trade and Commerce also held a hearing to review the embargo on trade with South Vietnam and Cambodia; and International Organizations held a hearing on H.R. 1287, which would amend the United Nations Participation Act of 1945 to halt importation of Rhodesian chrome. The committee heard testimony on an amendment which would ban importation of any steel product containing chromium in any form unless the steel is accompanied by a certificate of origin from the exporting country which satisfies the Secretary of the Treasury that the steel does not contain any Rhodesian chromium. The Subcommittee on International Economic Policy held a hearing June 5 on the activities of American multinational corporations abroad.

The Subcommittee on Fisheries and Wildlife Conservation of the Committee on Merchant Marine and Fisheries held a hearing June 13 on H.R. 80 and related bills. These bills, which were explained in detail in the last Trade Briefs column (*Commerce Today*, June 9), would place restrictions on certain imports from countries that allow any whaling, or the taking of whales in a manner that would diminish the effectiveness of the international whale conservation program. The Subcommittee also held a hearing on H.R. 3465, which would authorize the U.S. Government to dispose of certain sperm whale oil from the national stockpile.

Bills Reported—House: The Committee on Appropriations has reported to the House H.R. 8121, making appropriations for, among other things, the export promotion program of the Commerce Department. The Committee restored almost $5 million and 141 positions of the $6.5 million and 164 positions that had been cut from the export promotion budget in the Department's submission. The Committee report accompanying the bill states that the Department should review its priorities with respect to the location of additional trade centers. Specifically, the report calls for the Department to establish a center in Sao Paulo, Brazil. In addition, the report states that the Committee expects the Department to require established exporters to pay their "fair share" of the cost of operating projects, while nonestablished and new exporters should continue to be given preferential fee consideration as an incentive to enter into exporting.

Bills Passed—Senate: The Senate on June 16 passed S. 18, to prohibit the importation and prevent the spread of African/Brazilian honeybees in the United States.

Bills Passed—House: On June 19, the House passed H.R. 6860, to provide a comprehensive national energy conservation program. Included in the bill are automobile fuel efficiency standards that would impose civil penalties on manufacturers whose total production failed to meet minimum mileage requirements, which, in effect, increase from 18 MPG in 1978 to 28 MPG in 1985. If the average mileage of all cars produced by a manufacturer does not meet the legal minimum requirements, the manufacturer would pay a $50 fine for each mile per gallon the average is below the standard, multiplied by the total number of units the firm produced that year. The foreign and domestic production of domestic firms would be treated as the production of two separate manufacturers for purposes of calculating the average mileage.

Several attempts to attach trade discriminatory amendments to the bill were defeated or dropped on the floor of the House. An amendment to pay a direct rebate of $100 to $200 to purchasers of domestic fuel-efficient autos was ruled out of order, while another amendment which would have granted a $200 income tax credit to buyers of domestic cars was defeated. A proposal to give domestic manufacturers a direct payment of 10 percent of the retail price of each fuel-efficient auto sold was withdrawn before it could be considered on the floor.

The House on June 24 passed the following duty suspension bills: H.R. 7706, to suspend the duty on natural graphite until the close of June 30, 1978; H.R. 7709, to continue for a temporary period the existing suspension of duty on certain istle; H.R. 7710, to amend the Tariff Schedules of the United States to provide duty-free treatment to watches and watch movements manufactured in any insular possession of the United States if foreign materials do not exceed 70 percent of the total value of such watches and movements; H.R. 7715, to extend through June 30, 1978, the period during which certain dyeing and tanning materials may be imported free of duty; H.R. 7716, to amend the TSUS to suspend the duty on certain forms of zinc through June 30, 1978; H.R. 7727, to extend for an additional temporary period the existing suspension of duties on certain classifications of yarns of silk; H.R. 7728, to suspend through Oct. 31, 1975, the duty on catalysts of platinum and carbon used in producing caprolactam; and H.R. 7731, to suspend the duty on open-top hopper cars exported for repairs or alterations on or before June 30, 1975.

New Legislation: Since the opening of the 94th Congress, 386 trade and related bills have been introduced. Bills not previously reported in this column include:

S. 1882, to establish a national policy relating to conversion to the **metric system** in the United States; S. 1904, to amend the TSUS to change the customs treatment of certain **woven fabrics of wool** if products of an insular possession of the United States but imported into such possession as fabric for further processing; S. 1914, making appropriations for the Commerce Department for the fiscal year ending June 30, 1976, to continue certain export expansion programs in the Department; S. 1950, to amend the TSUS to impose higher rates of duty on products derived from **petroleum** and to distribute the revenue from such increased rates of duty to States which consume such products; and S. 1973, to amend the Export Trade Act (Webb-Pomerene Act).

H.R. 7412, to suspend for 3 years the duty on **oil skimming devices;** H.R. 7417, to amend the Trade Act of 1974 to provide for Federal reimbursement to States for unemployment insurance benefits paid to workers eligible for **adjustment assistance benefits** under such act, and to re-

peal the provisions of law which reduce certain tax credits for employers in any State which does not enter into, or fulfill its commitments under, a Federal-State agreement regarding the administration of worker adjustment assistance benefits; H.R. 7539, to give the Secretary of State responsibility for monitoring the overseas business activities of American companies in order to detect any violations of Federal law, and to make it unlawful for an American company to bribe any foreign official; H.R. 7546, to increase the temporary debt limitation and to repeal the tax exemption for a **DISC;** H.R. 7587, to repeal the income tax exemption of **DISCs,** and to comply with the directives of the Congressional budget resolution for fiscal 1976;

H.R. 7619, to amend the TSUS to change the tariff classification of certain composition **cork** bound with pigmented binder; H.R. 7665, to extend the Export Administration Act of 1969, as amended; H.R. 7861, to require the Administrator of the Federal Energy Administration to undertake a continuing study of the nature, quantities, and country of origin of all **petroleum** and petroleum products imported into the United States; H.R. 7956, to apply to **rail anchors** the same tariff treatment that applies to rails; H.R. 8041, to amend the Internal Revenue Code of 1954 to provide that domestic **distilled spirits** may be withdrawn without tax from foreign-trade zones for use by foreign governments and their diplomatic personnel; and H.R. 8076, to repeal the provision of law which prohibits importation into the United States of certain **furskins** which are the product of the Soviet Union or Communist China.

INT'L TRADE COMMISSION

Section 201: Import Relief Case: Following receipt of a petition filed by Russell, Burdsall, & Ward, Inc., the Industrial Fasteners Institute, and the Cap Screw and Special Threaded Products Bureau, the Commission instituted an investigation to determine whether **wood screws and bolts,** and **nuts** and **screws,** all of **iron or steel,** are being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry producing an article like or directly competitive with the imported articles. This is the second import injury investigation instituted under provisions of the Trade Act of 1974.

Dumping Cases: The Commission announced that an industry in the United States is not being or is not likely to be injured, or is not prevented from being established, by reason of imports of **welt work shoes** from Romania, or imports of **portable electric typewriters** from Japan.

Section 337: Unfair Import Practices Case: The Commission amended its investigation on **eye testing instruments** incorporating refractive principles to include in the investigation the Tokyo Optical Co., Tokyo, the alleged foreign manufacturer of the product in question.

TREASURY DEPARTMENT

Countervailing Duty Case: The Department has made a preliminary determination that bounties or grants are being paid on exports of Austrian **cheese** to the United States. The Department must issue a final determination in the case by Jan. 5, 1976.

Dumping Cases: The Department has determined that **electric golf carts** from Poland are being sold at less-than-fair value (LTFV). The case has been referred to the International Trade Commission for a determination on injury to U.S. industry.

The Department has instituted antidumping investigations on **wet motor type water circulating pumps** from the United Kingdom, and on **polymethyl methacrylate polymers** from Japan.

The Department has announced the withholding of appraisement on certain **non-powered mechanics' tools** from Japan. At the same time, the Department announced tentative discontinuance of the investigation covering other tools from Japan, namely, **micrometers, vernier calipers, and dial indicators.**

The Department has amended a finding of dumping on **potassium chloride** issued Dec. 19, 1969, to state that, for two years from the original dumping finding, sales by Swift Canadian Co., Brockville Chemical Industries, Ltd., and Hudson Bay Mining & Smelting Co., Ltd., have not been at LTFV. Assurances have been received that future sales of potassium chloride to the United States will not be at LTFV.

COMMERCE DEPARTMENT

Investigations—Firms: On the basis of petitions filed under provisions of the Trade Act of 1974, the Department opened investigations on the effect of imports on behalf of Dell Knitwear, Inc.; Bronx, N.Y. **(sweaters for infants and children),** and Deansgate, Inc., New Orleans, La. **(men's clothing).**

Adjustment Assistance—Firms: The Department certified Weiss-Lawrence, Inc., Dover, N.H. **(women's footwear)** eligible to apply for adjustment assistance under the Trade Act.

LABOR DEPARTMENT

Investigations—Workers: On the basis of petitions filed under provisions of the Trade Act, the Department has opened an investigation on the effect of imports on behalf of 39,000 workers of the Chrysler Corp. **(automobiles, automobile engines and trim).** Investigations were instituted on behalf of workers of the following companies, all producers of **footwear:** Northland Shoe Corp., Fryeburg, Me.; Pennsylvania Corp., Altoona, Pa.; Rosia Footwear Corp., Portage, Pa.; International Shoe Co., Sikeston, Mo.; St. Louis, Mo.; and Evansville, Ill.; Freeman Tour Co., Waynesboro, Pa.; Fisher Footwear, Inc., Eldon, Mo.; Brown Shoe Co., Brookfield, Versailles, and Charleston, Mo.; Samuels Shoe Co., Fulton, Mo.; and Weyenberg Shoe Mfg. Co., Waupun, Wis.

Investigations were also initiated on behalf of workers of Rohr Industries, Inc., Chula Vista, Calif. **(misc. mfgd. products);** Wurlitzer Co., New York **(juke boxes and electronic organs);** Singer Co., Ozone Park, N.Y. **(circular knitting machines);** General Electric Co., Home Entertainment Business Division, Syracuse, N.Y. **(consumer electronic products);** and Allis-Chalmers Corp., Pittsburgh, Pa. and Gadsden, Ala. **(distribution transformers and parts).**

Adjustment Assistance—Workers: Workers of the following firms have been certified as eligible to apply for adjustment assistance: approximately 100 workers of the Utica Cutlery Co., Utica and New York Mills, N.Y. **(stainless steel flatware);** app. 100 workers of Lisbon Shoes, Inc., Lisbon, N.H. **(women's footwear);** app. 90 workers of Essex International, Inc., Milford, Utah **(premanufactured and refined copper);** app. 130 workers of Palizzio, Inc., Long Island City **(women's footwear);** app. 240 workers of Schwartz & Benjamin, Inc., Lynn, Mass. **(women's footwear);** app. 500 workers of the RCA Corp. plant in Mountaintop, Pa. **(power transistors);** and app. 150 workers of the Magnavox Co. plant in Jefferson City, Tenn. **(television receivers).**

Workers of the following firms were ruled ineligible to apply for adjustment assistance; app. 225 workers of Brown Shoe Co., Newport, Ark. **(women's fashions);** app. 300 workers of Inmont Corp., Winthrop, Me. **(coated and laminated fabrics);** app. 130 workers of Vulcan Corp., Lawrence, Mass. **(heels and unit soles);** and app. 1800 workers of FMC Corp., Parkersburg, W. Va. **(rayon yarn and staple).**

Four Firms Get $1,000 Fines In Boycott Reporting Cases

Four U.S. export firms have received civil penalties of $1,000 each for their failure to report Arab requests to boycott Israel. The companies did not contest the charges. A fifth firm has been charged, but is contesting.

The companies upon which Commerce Department's Office of Export Administration imposed the penalty are: AGIP USA, Inc., Inter-Equipment Co., and National Cash Register Co. (NCR), all of New York; Continental-Emsco Co., Houston. The contesting firm was not named.

Worldwide Business Opportunities

International trade specialists in the Department of Commerce and Foreign Service Officers in the U.S. Embassies and Consulates around the world are continually developing specific commercial opportunities through which American companies can find buyers, agents, partners or investors abroad. One of the major means for communicating these opportunities promptly and accurately to the U.S. business community is through the columns of this magazine.

The section that follows presents details about upcoming trade exhibits and trade missions, licensing and joint venture proposals, opportunities to sell to foreign enterprises and appoint agents, and details on major construction and expansion projects.

U.S. Promotions Abroad

For more facts on these and other U.S. exhibitions write: Director, Office of International Marketing, Rm. 4015, U.S. Department of Commerce, Washington, D.C. 20230. For trade missions: Rm. 4219, U.S. Department of Commerce, Washington, D.C. 20230.

Advanced Building and Construction Equipment Exhibition. U.S. Trade Center, Mexico City. Sept. 1-5. The Mexican market for building and construction machinery and equipment is growing at a rate of 11 percent per year. U.S. equipment, which enjoys an image of very good quality backed by good service, traditionally commands a 50 to 60 percent share of the total market for this equipment. An ambitious national housing plan calls for construction of 50,000 low-cost homes by 1977. Call Mary Wiening, 202-967-5037.

Food and Tobacco Processing. International Fair, Plovdiv, Bulgaria. Sept. 3-10. Agriculture accounts for 25 percent of the Bulgarian GNP and over 30 percent of exports. During the next year Bulgaria intends to spend $220 million in modernization and expansion of plants and facilities, and is anxious to use American technology and equipment to help improve output and efficiency. Cooperation with foreign firms is now possible and encouraged. Dick Bell, 202-967-5163.

Instruments and Controls for Science and Industry. U.S. Trade Center, Tehran. Sept. 7-11. Iran's current national Development Plan projects about $22 billion in investment for instrument and control related fields from 1973-78. Foreign exchange earnings are expected to reach $18 billion, while imports jump to $10 billion in 1974-75. The instrument and control market is expected to multiply more than 2½ times by 1978, to $168 million. The U.S. share of imports of instruments and controls into Iran is around 19 percent against Germany's 22 percent. Karl Reiner, 202-967-4441.

Packaging Machinery and Equipment (Joint Export Estab. Program—JEEP). U.S. Trade Center, Taipei. Sept. 8-11. Scheduled to coincide with the annual convention of the China Packaging Institute in Taipei. Commerce market research indicates that Taiwan's demand for imported packaging machinery will reach $12.5 million in 1977, a substantial increase over 1974 imports of $9.8 million. Roy Mitchell, 202-967-2051.

Electro-Optics Instruments and Systems Exhibition. U.S. Trade Center, London. Sept. 8-12. The relevant British market is currently $9.6 million. This market offers important opportunities to aggressive U.S. companies with state-of-the-art products/technology to sell. Demand is high for optical production components and testing instruments; lasers and laser systems; holography, and fiber optics. Irwin D. Nathanson, 202-967-4462.

Pollution Control Equipment Exhibition. U.S. Regional Trade Center, Singapore. Sept. 9-12. Air, water and oil pollution control equipment and instrumentation will be featured at this first U.S. exhibition of pollution control equipment in Singapore. Potential buyers from the surrounding countries of Malaysia, Indonesia, the Philippines, Thailand and Hong Kong will attend the exhibition and technical seminar. Rapid off-shore oil development, heavy oil tanker traffic and increasing concern for environment in the area, make this a propitious time to exhibit. Joe Payne, 202-967-3893.

Printing and Graphic Arts Catalog Exhibit. Zagreb, Yugoslavia. Sept. 12-21. The Yugoslav market for printing and graphic arts equipment is expected to reach $19 million by 1977. A shortage of skilled labor has increased demand for more advanced technology and has stimulated purchase of all types of automated printing equipment. The printing industry in Yugoslavia is almost entirely dependent upon imported products. Will be conducted within a USIA exhibit at the Zagreb Fall Fair. Robert E. Peterson, 202-967-3973.

Fluid Power Technology. U.S. Trade Center, Paris. Sept. 15-18. U.S. manufacturers have an exceptional opportunity to increase sales and establish representation or other business relationships in the French market. Many new factories are being constructed and old ones modernized. Due to rising labor costs, French management is seeking methods of improving manufacturing processes and automating operations. In 1974, French purchases of hydraulic and pneumatic equipment and parts were $372 million. Imports accounted for about 51 percent of the French hydraulic market and 56 percent of the pneumatic market. Bill Dawson, 202-967-4941.

Plant Engineering and Maintenance Catalog Exhibit. Earl's Court, London. Sept. 15-19. British industry is estimated to be spending approximately $800 million annually on maintenance and replacement of plant facilities. This catalog exhibit in PEMEC will feature products, systems and services designed to cut the cost of manufacturing by maintaining plant facilities and production machinery and equipment in first-class operating condition. Because of rising labor costs, firms in the United Kingdom are also using outside cleaning contractors more often. These contracting firms are now offering extended services to include complete janitorial coverage. The total annual turnover of the cleaning and building maintenance industry is estimated in excess of $500 million. Robert E. Peterson, 202-967-3973.

Printing and Graphic Arts Equipment. U.S. Trade Center, Sydney. Sept. 15-19. The Australian market for printing equipment has expanded from $33 million in 1972 to $54 million in 1974, almost all imports. U.S. exporters are in a good position to increase their share in the face of British and German competition. Phone 202-967-2963.

Design Engineering Catalog Exhibit. Harumi, Tokyo. Sept. 16-21. Next to the United States, Japan has the largest original equipment market in the world, estimated at $50 billion. With recent easing and lifting of trade restrictions on materials, parts, components and finishes, now is the time for U.S. manufacturers to show their products to Japan's design engineers. This catalog exhibit at DES '75 will promote materials, parts, components and finishes that contribute to final product, and technology needed to increase efficiency, productivity and economy in the manufacturing process. Robert E. Peterson, 202-967-3973.

Electronic Components. Stockholm Trade Center, Sept. 22-25; Frankfurt Trade Center, Sept. 30-Oct. 3. U.S. manufacturers and suppliers of electron tubes, solid state devices including transistors, integrated and other semi-conductors, capacitors, resistors, connectors, switches and other passive components may participate in one or both events in this "tandem" exhibition. The U.S. is a leading supplier of electronic components in Sweden. A 10 percent annual rate of increase in Sweden's imports of electronic components is expected through 1977. German imports of electronic components are forecasted to reach $510 million by 1977. Both countries' growing requirements for advanced components, coupled with their need to establish additional sources of supply, will enhance prospects for further U.S. market penetration. Maurice A. Peter, 202-967-4256 or Mike Frisby, 202-967-3748.

Fluid Power Exhibition, U.S. Trade Center, Milan. Sept. 23-27. U.S. products dominate the Italian market in high technology hydraulic equipment, especially that needed for applications requiring pressure of over 2,000 P.S.I. The squeeze on profit margins and high labor costs have further stimulated interest among Italian firms and the market is expected to exceed $200 million by 1976, of which $60 million will be imported. U.S. products with high sales potential include hydraulic pumps, motors and valves, servosystems, gauges and indicators, pressure transducers and rotary compressors. John Priamou, 202-967-2434.

Advanced Business Equipment Exhibition. U.S. Trade Center, Mexico City. Sept. 29-Oct. 3. Mexican consumption of modern business equipment has increased at an annual rate of 10 percent, reaching almost $90 million in 1974. Imports meet more than two-thirds of total Mexican demand for business equipment, and U.S. manufacturers supply 53 percent of total imports. Vigorous growth in sectors such as petroleum, steel, tourism, banking and government administration insures that demand for this equipment will remain high. Phil Christenson, 202-967-5038.

Magasin General In-Store Promotion. Tunis. Sept. 29-Oct. 7. Magasin General, Tunisia's leading department store, will hold a special promotion of U.S. consumer goods in Tunis this fall. Tunisia is approaching one billion dollars as an import market, with a healthy economy fueled by increased production of petroleum and phosphate. Magasin General is interested in buying U.S. housewares, giftware, costume jewelry, cosmetics and beauty products, among other categories. The U.S. buying office for Magasin General is Retailers Representatives, Inc., 1372 Broadway, New York, N.Y. 10018. Charles E. Johnson, 202-967-4705.

Advanced Medical Equipment Exhibition. U.S. Trade Center, Tokyo. Oct. 6-9. By 1976,

Japan will be importing $67 million of biomedical equipment, 50 percent or $34 million of which will come from the United States. Now is an excellent time for U.S. manufacturers of advanced medical equipment to take advantage of Japan's efforts to increase its medical research programs, improve rural health care delivery systems, and expand facilities for the aged and those afflicted with pollution-related disease. John Wolf, 202-967-2461.

Agricultural Machinery and Equipment Trade Mission to Brazil, Venezuela and Colombia. Oct. 6-17. Present economic conditions are extremely favorable for the sale of a wide variety of agricultural machinery and equipment to these three countries. Brazil's ambitious agricultural development program has created a demand for crop and livestock production equipment that is currently growing at the rate of 38 percent per year. Since domestic production cannot keep up with this demand, opportunities for U.S. sales are excellent. Oil-rich Venezuela is likewise carrying out plans for massive increases in agricultural production. Colombia's consumption of agro-pastoral machinery and equipment, which has been growing at an average annual rate of 13.8 percent, is projected to reach $71 million by 1977. Of this total, $56 million will be imported, and the U.S. share is expected to reach $11.8 million. Ed Oliver, 202-967-3746.

Food Production/Storage/Processing/Packaging Trade Mission. Morocco, Kenya, Zambia, Swaziland. Oct. 6-22. This mission will promote the sale of machinery and equipment used to prepare or process food from the time it is harvested/collected until it reaches the consumer. E. Lee Carteron, 202-967-2973/4.

Nuclex '75. Basel, Switzerland. Oct. 7-11. Nuclex is the largest, most important international trade fair for the nuclear industry. When last held in 1972, it had over 320 industrial exhibitors representing 22 countries and attracted 16,000 buyers from all over the world. Mara Yachnin, 202-967-5751.

Medical and Laboratory Equipment Exhibition. U.S. Trade Center, Sydney. Oct. 13-17. Sophisticated American medical and laboratory equipment garnered better than 32 percent of the Australian import market during 1974. The continuing technological superiority of American products, their accepted high quality, and recent Australian Government medical expansion programs are all factors which bode well for future sales increases. Contact Don McDonough, 202-967-2461.

Air and Water Pollution Control Equipment and Instruments Catalog Exhibit. Madrid. Oct. 13-18. Sales of pollution control equipment in Spain are expected to more than double between 1974 and 1978, from more than $225 million to nearly $470 million. This catalog exhibit, to be held at the First Iberian American Congress on the Atmosphere, will stress air and water pollution control equipment and instrumentation. Manufacturers of pollution control equipment pertaining to the iron and steel industry, chemical industry, sewage treatment plants, municipal water supplies, and non-ferrous metal, power generation, cement, and the pulp and paper industries should find good exposure. Robert Peterson, 202-967-3973.

Machine Tools and Metalworking Equipment (JEEP). Seoul. Oct. 14-17. The market for machine tools and metalworking equipment is growing rapidly as Korea becomes an industrialized nation. Commerce estimates 21 percent annual growth for imports of metalworking machinery of all types for the next five years. Welding equipment, metal cutting and metal forming machine tools and quality control equipment have best sales potential. Carol A. Murray, 202-967-2215.

American Fortnight 1975. Hong Kong. Oct. 18-Nov. 2. During the American Fortnight's city-wide promotion of U.S. goods, Hong Kong's major department stores will feature American-made consumer goods. Participants in the second American Fortnight are: Shui Hing, Wing On, Sincere, Dragon Seed, Crane Stores, and the Mode Elite group of fashion boutiques. This fall's event, greatly expanded over the 1973 Fortnight, will introduce and promote American products to the four million residents of Hong Kong and surrounding region. Special events scheduled include: parades, a football game, fashion shows, concerts by singer Nancy Wilson and appearances by Miss America. Charles Johnson, 202-967-4705.

Data Communications and Peripheral Equipment. U.S. Trade Center, Paris. Oct. 20-23. This exhibition is the third Commerce has sponsored in Paris for these product categories; the previous shows were large sales successes. Demand is expected to be higher than before, as rapid development of telecommunications provides excellent growth potential for data communication terminals and other EDP peripheral equipment. Special arrangements will be made for participants who wish to also attend Systems '75, Munich, Oct. 27-31. Chuck Whitley, 202-967-5381.

Nord-Air '75 Specialized Exhibition. U.S. Trade Center, Stockholm. Oct. 20-24. This is an avionics/ground support show. There is a demand for advanced products and systems created by Sweden's ongoing program for upgrading air traffic control centers at its three major international airfields and landing systems at provincial fields. To a lesser extent, there is similar activity in the other Nordic countries. Sweden's Board of Civil Aviation is investing $25 million in ground avionics plus another $8 million in machinery and vehicles alone. American-made equipment is recognized as being technologically superior. Swedish manfacturers have no significant advantage over U.S. suppliers in either costs or tariffs. William Beiring, 202-967-3276.

Hotel & Restaurant Equipment Exhibition. Taipei Trade Center. Oct. 20-24. Taiwan's Tourism Bureau forecasts that by 1980, 13,700 hotel rooms of international tourist standards will be required; there are only 4,600 such accommodations today. Planning and construction are under way for about 4,000 such units, in addition to the proliferation and upgrading of eating and entertaining facilities. Taiwan hosted over 810,000 foreign visitors in 1974, and the government is inducing the private sector to prepare now for an average annual increase of 15 percent. Taiwan will require in excess of US$5.1 million in service equipment in 1976 in categories of institutional food preparation and service, administration, housekeeping, security, entertainment and function-room equipment and supplies. Timed to provide exposure with the influx of Chinese businessmen and entrepreneurs from all over the Far East who return for October holiday festivities and cultural events each year. Dave Horridge, 202-967-2798 or 5545.

Food Processing and Packaging Equipment Catalog Exhibit. MACHEVO '75. Utrecht, Netherlands. Oct. 20-25. The Royal Netherlands Industries Fair in Utrecht is the site for MACHEVO '75, held only once every four years and the most important trade event in the Netherlands for the processing industries. The Commerce Department booth at this fair will display catalogs of American firms featuring machinery and equipment for food processing and packaging. Dutch industry is receptive to technological improvements, and recent changes in relative value of the dollar to the Dutch guilder make equipment purchases from the U.S. attractive. Call Robert E. Peterson, 202-967-3973.

Equipment for the Ceramics Industry (JEEP). U.S. Trade Center, Milan. Oct. 21-23. The market for production equipment and supplies for the ceramics industry is expected to grow from $42 million in 1974 to nearly $46 million by 1976, with imports accounting for almost 20 percent of the total. The increase will come principally from efforts to upgrade technology in certain manufacturing sectors. Italian firms are showing greater interest in the purchase of laboratory equipment and instruments for testing and quality control. Management also plans to invest in new labor-saving equipment to off-set rising wage rates. J. Michael Springmann, 202-967-4975.

Technical Sales Seminar on Advanced Metalworking and Metal Parts Finishing Equipment. Yugoslavia. Oct. 26-31. In response to strong and growing demand for American metalworking and metal parts finishing equipment, Commerce will arrange a seminar for seven American manufacturers. There will be seminar presentations in Belgrade and Zagreb to discuss the state of the art in the U.S. and hold discussions with purchasing authorities. W. Bradley Tyrrell, 202-967-5285.

Systems '75. Munich. Oct. 27-31. Systems '75, one of the world's most prestigious computer industry shows, is a biennial event open to manufacturers and suppliers of computer hardware and software, peripheral equipment, and computer services. The previous show, Systems '73, proved to be an outstanding success for the 60 U.S. exhibitors. Floor sales totaled $2.1 million with projected twelve-month sales at $146 million. Chuck Whitley, 202-967-5381.

Agriculture, Water and Food Equipment, AGWA-FOOD International Trade Fair. Tehran. Oct. 31-Nov. 6. Iran continues to be one of the fastest growing markets for U.S. exports in the world. Our exports almost tripled last year to a total of $1.7 billion. In the Iranian Fifth Plan, 1973-78, agricultural development has been assigned key priority. More than $4 billion will be invested in means to produce, process, transport and market foodstuffs. Particular emphasis will be given to increasing the area under irrigation, increasing silo capacity, expanding red meat and milk production and increasing farm productivity by formation of larger farm units through cooperatives and agribusiness enterprises. William S. Gaines, 202-967-4441.

Air & Water Purification & Pollution Control Equipment Exhibition. U.S. Trade Center, Milan. Nov. 6-12. Recent market research reveals that this is one of the Italian economy's fastest growing sectors. From a volume of $87.6 million in 1973, the Italian market is expected to jump to $386.8 million by 1978, an average yearly increase of 35 percent. This spectacular growth in demand for pollution control equipment caught Italian industry completely off-guard and it was not prepared to meet it. Consequently, imports in 1975 will be about $41 million and it is predicted they will jump to over $68 million in 1978, an average yearly growth of 19 percent. Sam Spaulding, 202-967-4508.

Microwave Components and Instrumentation Exhibition. U.S. Trade Center, Tokyo. Nov. 10-14. The Japanese microwave market is structured to accommodate imports based upon high technology, sophistication and quality. U.S. products which feature special surface processing, top quality raw materials and highly reliable precision made durable moving parts are much in demand in Japan. Their newly applied microwave technology is three to five years behind ours. Market information based upon microwave research recently prepared for this exhibition is available. Mara Yachnin, 202-967-5751.

Printing and Graphic Arts Exhibition. U.S. Trade Center, London. Nov. 10-14. Research

has indicated strong U.K. markets for automated composition equipment, small offset and letterpress and multicolor printing and photographic equipment. U.S. sales in 1974 at $18.7 million were up 28 percent from 1972. Since 1970, this market's average annual growth rate has exceeded 20 percent. The British printing industries' shift to cold type and offset processes and increasing diet for multicolor printing, particularly for advertising, provide a strong market for U.S. advanced printing and graphic arts equipment. Bill Flanagan, 202-967-4461.

Industrial Process Controls and Instrumentation Equipment. Frankfurt Trade Center. Nov. 11-14. Unique sales opportunities exist in Germany for process measuring and control instruments and systems for measuring, recording and controlling physical and chemical properties, such as temperature, pressure, vacuum, fluid flow, liquid level, mechanical motion, humidity density, combustion and chemical analysis. Due to anticipated expansion of petroleum refineries and growth of the petrochemical industry, the German process control instrument market is expected to reach almost $750 million by 1978. Robert Wallace, 202-967-3748.

Process Control Instrumentation Technical Sales Seminar. Hong Kong, Taiwan, and Korea. Nov. 12-22. Market studies indicate rapidly expanding markets for American process control instruments for the iron and steel, chemical and petro-chemical, non-ferrous metals and electronics industries in these countries. The Technical Sales Seminars scheduled for Hong Kong, Taipei and Seoul will highlight American instrumental developments for test, regulation and process control systems. Seminar sessions will be supplemented by sales meetings between participating company representatives and key governmental and industry buying executives. Fred Crosley, 202-967-5285.

Educational Systems. U.S. Trade Center, Tehran. Nov. 16-20. Iran aspires to generate the same GNP as West Germany within ten years, using petrodollars as the industrial growth catalyst. The key ingredient to achieve this goal is a large pool of educated and trained Iranians. By 1978, 130 teacher training centers will be established, as will 500 technical and vocational training centers. Iran seeks the most modern methods to educate and train its people. This exhibition and accompanying seminar program will feature education technology systems, software, training aids and some hardware. Don Ryan, 202-967-4652.

Housewares and Portable Home Appliances Specialized Exhibition. Paris Trade Center. Nov. 18-21. The rapid rise of salaries and entrance of more French women into the workforce have resulted in fast-growing demand for sophisticated housewares and appliances. U.S. products in this field have the highest reputation in France for quality and innovation and, furthermore, the increasingly favorable dollar/franc exchange rate has made U.S. products more price competitive. This exhibition, "200 Years of U.S. Homemaking Tradition," encompasses portable electrical appliances, buffets and serving items, cookware and bakeware and home convenience items. Bill Dawson, 202-967-4941.

First International Metalworking Fair. Sao Paulo. Nov. 20-30. The outlook for U.S. exports of metalworking and finishing equipment to Brazil is extremely good. The U.S. exported $52 million worth of metalworking equipment to Brazil in 1974, our largest market after Canada. In spite of expanding production capacity of domestic manufacturers, demand for imports of highly sophisticated metalworking equipment is expected to expand rapidly over coming years. In 1978 domestic production of metalworking equipment is expected to reach $83 million while imports are expected to go as high as $819 million. Sam Bevans, 202-967-4173.

Non-Ferrous Metallurgy Products and Technology Technical Mission to Poland, Czechoslovakia and the Soviet Union. December. In each country, seven companies and a government-appointed chairman will present a technical symposium. A product exhibition will also be included in the Moscow segment. Michael Goodwin, 202-967-3376.

Port and Shipyard Equipment Trade Mission to Greece, Yugoslavia and Italy. Dec. 1-17. Major port improvement and expansion projects, coupled with reopening of the Suez Canal, which is expected to increase ship repair business and cargo tonnages significantly, offer tremendous opportunities for U.S. manufacturers. Among products/services offering best potential are: container terminal equipment, port traffic control equipment, conveyors for transporting bulk cargo, refrigeration warehouse equipment, shipbuilding, ship supply and ship repair equipment, and engineering and port design services. Call Wanda Ale, 202-967-4511.

Metal Finishing and Surface Treatment Equipment Exhibition. U.S. Trade Center, Milan. Dec. 2-5. Beset by rapidly rising production costs stemming from continuing high inflation and wage increases averaging 20 percent per year since 1969, Italian businessmen are stepping up purchases of equipment, supplies and techniques which will help to contain costs. The trend toward more widespread utilization of advanced, labor-saving equipment has had a strong impact on the Italian market for metal finishing and surface treatment equipment and supplies, which increased from $52 million in 1972 to $63 million in 1974. Pete Wilson, 202-967-2434.

Electronic Components. Paris Trade Center. Dec. 8-12. The French electronic component industry is expected to expand at an annual rate of between 15 and 20 percent in the next several years. The value of imports is forecast to approach $155 million in 1977. U.S. manufacturers were the source of more than one-third of France's annual imports in recent years and can anticipate sales to France in excess of $50 million in 1977. Included in this exhibition are integrated circuits, transistors, capacitors, resistors, diodes and rectifiers and color TV picture tubes. Call Myra L. Triplett, 202-967-5381.

Advanced Business Equipment and Materials Exhibition. U.S Trade Center, Stockholm. Dec. 8-12. Sweden, Norway, Denmark and Finland, import-oriented markets with rapidly expanding demand for U.S. business equipment, offer excellent opportunities to U.S. exporters. U.S. exports to the area rose to $24.2 million in 1974, 49.5 percent over 1973. The market for business equipment in Sweden, the major Scandinavian market, is rapidly approaching $200 million and is expected to grow at a rate of 14 percent per annum for business machines and 20 percent for consumable auxiliary materials and accessories in the 1975-79 period. Call Robert J. Blake, 202-967-3088.

Sportswear and Casual Clothing—JEEP. U.S. Trade Center, Milan. Dec. 13-15. Sales opportunities for U.S. manufacturers of these types of clothing are soaring as the trend towards more informal dress and sportswear attire accelerates. Also, a shift in consumer purchasing of ready-to-wear clothing is evident. Over 70 percent of current clothing expenditures are for ready-to-wear apparel, a marked contrast from 20 percent in 1965. Clothing imports in 1973 represented over a $100 million market, an increase of 49 percent over 1972, and have been steadily rising. Future sales possibilities are promising. Ann Corro, 202-967-3945.

American Toy Fair. U.S. Trade Center, Tehran. Dec. 14-18. Iran is one of the fastest growing markets for American goods. Fueled by an influx of 20 billion petrodollars last year, per capita GNP doubled between 1972 and 1974. The rising level of affluence is reflected in drastically increased consumer demand. The Iranian market for toys has been artificially held back by high import duties and taxes, designed to protect local industry. Since pent-up demand for toys far surpasses the ability of Iranian industry to satisfy, the Iranian Government has eliminated the 100 percent import tax on toys. Don Ryan, 202-967-4652.

Computers and Peripheral Equipment and Systems Exhibition. U.S. Trade Center, London. Jan. 12-16. The United Kingdom is one of the world's largest markets for digital computers and peripheral equipment. In 1973 apparent consumption was $659.8 million. In 1974 U.S. exports to Britain of equipment covered by this exhibition were valued at $199 million (f.o.b.), with the United Kingdom accounting for 12 percent of U.S. world exports. In the same year direct exports to the Republic of Ireland of U.S. digital data processing hardware covered by this exhibition were valued at $12.7 million. Targets will be agents and distributors, British and Irish end-users, and systems manufacturers. Mike Frisby, 202-967-4462.

Health Care Industries Exhibition, U.S. Regional Trade Center, Singapore. Jan. 13-16. In an attempt to make Singapore the medical center of Southeast Asia, the Government of Singapore has launched a $50 million program for expansion and modernization of health care facilities. The Ministry of Health will spend $8 million for imported equipment in 1976 and similar amounts in following years. Pete Wilson, 202-967-3893.

Woodworking Equipment (JEEP). U S. Trade Center, Taipei. Jan. 19-22. By 1976, Taiwan's imports of woodworking equipment are expected to exceed $10 million. The U.S. share of these imports is expected to increase from 6 to 8 or 9 percent. Taiwan has an internationally competitive woodworking industry. It is the second largest supplier of plywood to the U.S. (over $200 million). Exploding markets for its knocked-down furniture sector are in the U.S., Japan and Australia. The third segment, hardwood handicraft, is also doing a thriving overseas business. Now is the time to get woodworking equipment to the Taiwan market, which is moving ahead again after the world economic slowdown. Roy Mitchell, 202-967-2051.

Printing and Graphic Arts Exhibition. U.S. Trade Center, Milan. Jan. 20-24. Offset printing presses, photographic and computerized composition equipment, color proofing systems, and automatic saddle stitchers adjustable to various size publications are among U.S. items of interest on the Italian market, which consists of 345 publishers, 8,700 general printers, 1,600 bookbinders and a sizable number of in-house printing facilities, many of which seek to modernize operations. Current exchange rates result in American equipment being very competitively priced. J. Michael Springmann, 202-967-4975.

Industrial and Environmental Noise and Vibration Exhibition and Seminar. U.S. Trade Center, Tokyo. Feb. 2-6. Market capacity and magnitude for noise and vibration instrumentation in Japan is affected generally by the intensity of industrial and environmental pollution and earthquake problems. Public nuisance control is an acute problem and the central and local governments have enacted drastic legislative countermeasures.

Product content for this exhibition includes analysis and measuring equipment, control instrumentation, acoustically-rated architectural equipment used for acoustical performance, earthquake test and measure systems, hearing test and production equipment. Don McDonough, 202-967-4057.

Materials Test and Quality Control Equipment Exhibition. U.S. Trade Center, Milan. Feb. 17-21. Italy's extensive, sophisticated, manufacturing complex in the metal, mechanical, electro-mechanical and electronic product areas looks to the U.S. for advanced materials test and quality control equipment. Production, research and development engineers of Italian automotive, aircraft, railway, power generation, home appliance, machinery and electronic manufacturers and metal processors will attend. Non-destructive testing equipment; circuit testers; shock, vibration, stress measuring equipment; crack and seam testers; metallurgical test equipment; electron microscopes; and industrial x-ray equipment are among many items of special interest. Imports are estimated at $80 million annually. Philip Christenson, 202-967-4377.

Building Materials and Construction Equipment Trade Fair. Saudi Arabia. Feb. 23-28. Saudi Arabia is faced with the dilemma of how to modernize while still preserving traditional values. Its five-year development plan will inject about $100 billion into the economy and bring half a million foreign workers into the country. Specific goals of the plan are expanded health, education, and general welfare programs; construction of over 100,000 new homes per year; continued improvement in already established transportation, port, and communications infrastructure; accelerated development of industry, especially petroleum refining and petrochemicals, fertilizers and extraction and processing of mineral resources; and expansion of agriculture. Commerce is offering a uniquely integrated approach to these developments with a trade fair of 50 firms which will include building materials manufacturing firms; construction equipment; architectural, engineering, design and planning firms; urban development firms and contractors. Franc D. Manzolillo, 202-967-2515.

In-Store Promotion. David Jones Ltd., Sydney. May. David Jones Ltd., the largest department store chain in Australia, will stage a major promotion of U.S. consumer products. Eighteen of its stores throughout the country will feature a wide variety of U.S. goods, plus special exhibits and attractions. U.S. buying representatives for David Jones are: R. W. Cameron & Co., 420 Lexington Ave., New York, N.Y. 10017; and Frederick Atkins Inc., 117 West 9th St., Los Angeles, Calif. 90015. Charles Johnson, 202-967-4705.

Selfridges' In-Store Promotion. London. May 3-June 12. Selfridges, Ltd. of London is planning a special "American Bicentennial Promotion" featuring U.S. consumer goods for six weeks in spring of 1976. This promotion will spotlight a wide variety of American-made products. Special attractions will include an exhibit tracing U.S. history from covered wagon days to the space age. Charles E. Johnson, 202-967-4705.

Textile Machinery & Fiber Technology, INGLEGMASH-75. Moscow. May 25-June 8. Modernization of the Soviet textile industry is resulting in large imports of specialized textile machinery and fibers' technology. In the current 5-year period, production of knitted goods is planned to grow by 50 percent and some chemical fibers by 80 percent. Continued growth in these areas under the next 5-year plan offers U.S. exporters increased opportunities. Dick Bell, 202-967-5163.

Licensing, Investment Abroad

Licensing and investment proposals from foreign firms are listed in these columns. Specific product interests in each proposal are highlighted in bold type to facilitate identification and each proposal is preceded by the appropriate four-digit product number taken from the Standard Industrial Classification (SIC) Manual.

Background information on opportunities abroad and assistance on overseas investments are available from the Foreign Investment Services Staff, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. "P" numbers should be used when responding to any of the specific proposals listed.

WTDR indicates that a World Traders Data Report containing financial and background information on the foreign firm is available for $15 from the Export Information Division, Room 1313, U.S. Department of Commerce, Washington, D.C. 20230, or from any Commerce District Office.

OPIC indicates that the country involved is eligible for investment insurance coverage and financing from the Overseas Private Investment Corporation. Information regarding applicable coverage may be obtained from OPIC, Washington, D.C. 20527.

1500—NIGERIA—Recently formed **building construction company** is seeking an experienced U.S. joint venture partner. U.S. firm would have 60 percent ownership and would provide capital, including equipment and expertise. Company has acquired 14-acre site in Lagos State for use in establishing workshops, storage areas and concrete making factory. Additional information available from Foreign Investment Services Staff, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. P-75424. OPIC.

2819—MEXICO — Seeks licenses and/or joint venture to produce high grade **antimony trioxide** using low grade ores. Firm is major producer of zinc oxide, zinc dust, and sodium hydrosulfite. Also produces sulfoxylate and sulfur dioxide. Established in 1948, company has 326 employees and estimated annual sales of $10 million. Correspondence may be in English. General Products Co., S.A., Paseo de la Reforma 234, Oficina 503, Mexico 6, D.F. P-75420.

2819—UNITED KINGDOM—Seeks licenses to produce **wear resistant coatings** for various types of equipment, especially that used in textile industry. One process sought involves electroless plating of synthetic diamonds on a nickel matrix. A second process sought deposits chromium oxide by chemical means, possibly vapor deposition process. P. A. Lavin, General Manager, Coating Division, Monitor Engineers Ltd., Monitor Works, Coast Road, Wallsend, Northumberland, England. P-75443.

2834—MEXICO—Seeks collaboration with U.S. firm **to expand production of medicines** that would supplement and complement present line. Currently producing antibiotics, vitamins, fungicides. Company prefers to license technology but will consider investment. Firm plans to move to more modern plant having 15,000 sq. ft. of production area. Company has 53 employees and had 1974 sales of $1.1 million. Carlos Guerra, Sales Manager, Casa Keyerson, S.A., Ixtaccihuatl No. 1, Mexico 20, D.F. P-75423.

2861—MEXICO—Seeks licenses to produce **pine oil** from pine gum turpentine using solvents only. Will use the pine oil in aromatics, detergents, textiles and metal flotation in Mexico and for export. Company has small industrial installation to which new facilities can be added. Alfredo Naveda E., Aptdo. Postal 246, Toluca, Estado De Mexico. Cable address: NAVEX, Toluca; telephone, 56073, Toluca, Mexico. P-75422.

2875—BRAZIL — Seeks collaboration with U.S. firm knowledgeable about **design, technology, equipment requirements and construction of plant to produce fertilizer from domestic garbage.** Company employs 16, has annual sales of $165,000 and currently manufactures detergents, soap, disinfectants, peroxide and shampoo. Correspondence may be in English. Dr. Clovis Figueiredo Souza, NORQUIFF-Nordeste Quimica Farmaceutica Ltd., Av. Estados Unidos, no. 10, s/1103/5, 40000 Salvador-Bahia. WTDR. P-75427. OPIC.

3079—GERMANY — Seeks licenses to produce **plastics closures and caps for bottles, tubes, aerosol cans, especially safety closures.** Company founded in 1956, employs 75, has estimated annual sales of $2 million. It manufactures small plastic injection molded parts including closures. Walter Steiner, Manager, Weener Plastik Meerguth & Co., Marker Weg 2, 2952 Weener/Ems. P-75421.

3357—SRI LANKA—Leading manufacturer of nonferrous wire and cable proposes to establish new public company for production of **fine magnet wire** for export. It is seeking U.S. collaborator in providing it with either loan or equity investment in machinery and ancillaries. Estimated cost of project is US$3 million, of which firm requests U.S. participation in sum of $1.35 million or 45 percent. Company presently manufactures PVC cables, magnet wire, overhead power transmission conductors and solid drawn copper conductors for telegraphic purposes. European distributor assures export of fine magnet wire to South East Asia through its existing channels. P.A.P.B. Wijegoonewardena, Managing Director, Kelani Cables Ltd., P.O. Box 14, Kelaniya, Sri Lanka. Cable: NONFERROUS, Kelaniya; telephone, 075-224,225 & 226. P-75425. OPIC.

3443—JAPAN — Firm seeks licensing arrangement to manufacture **plate type heat exchangers** to be built in its textile dyeing machines or to be sold separately. Firm is wholly owned subsidiary of Nippon Metal Industry of Tokyo, one of Japan's leading manufacturers of stainless steel sheets, bars and castings. Company employs 220, and reports current annual sales of $80 million consisting of such items as textile dyeing machines, filters, tubular heat exchanges. Haruo Nishi, Planning & Development Section, Nippon Dyeing Machine Mfg. Co., Ltd., 123 Kanie-cho, Ama-gun, Aichi Prefecture 497. P-75441.

3662—UNITED KINGDOM—Seeks licensing or joint venture agreement for production of **airborne radio and navigational aids.** Presently manufactures, imports and sells records, tapes, television and audio equipment, radar equipment, navigational aids, survey equipment and industrial electronic equipment. K. W. King, Director, Decca

Communications Ltd., Decca House (Room 911), 9 Albert Embankment, London SE1, England. P-75429.

3679—GERMANY—Seeks license to manufacture **electronic parts** and **structural components.** Also wants to make **clamping and locking devices** for electronic, electrical and communications industries. Presently, firm produces buttons and belt buckles. It employs 500. Herr Vogelsang, Astor Werk, Otto Berning & Co., 583 Schwelm, Markgrafenstr. 6. Postfach 390. P-75417.

3679—UNITED KINGDOM—Seeks license or similar agreement to manufacture **small electronic equipment.** Firm has 8,000 sq. ft. of production facilities available immediately. Company makes and markets video and telecommunications test equipment and score board display equipment. Employs 125. R. T. Wood, Managing Director, Norton Telecommunication Ltd., Bilton Way, Dallow Road Trading Estate, Luton, Bedfordshire, England. P-75418.

3679—UNITED KINGDOM — Seeks arrangement to assemble, manufacture under license **electronic components or control gear.** Firm presently produces reed relays and solid state switching devices. Also markets controls gear, motors, fuses, resistors and capacitors. Represents 27 U.S. companies. Reports annual sales of $1.1 million. L. B. Abbott, Managing Director, Kempston Electrical Co. Ltd., Shirley Road, Rushden, Northamptonshire NN10 9BZ, England. P-75419.

Iran Offers Financing For Hotel Construction

To encourage more investment in hotel construction in Tehran, the government of Iran recently decided to offer concessional financing through public sector banks. Loans for hotel construction are available at six percent interest with repayment periods of 15-20 years. The amount of financing available under those terms will be negotiated on a case-by-case basis. It is estimated that in Tehran 4,000 additional hotel rooms will be needed up to the end of the Fifth Development Plan period (March 20, 1978). After that time about 1,000 additional rooms will be needed annually. Additional hotel rooms will also be needed in other areas of the country.

Interested investors and hotel management companies can obtain assistance in identifying potential Iranian partners by contacting Ali Mohammed Khayami, Director General for Investment Affairs, Ministry of Information and Tourism, Tehran, Iran. Please send copies of initial correspondence to Mr. Khayami to Foreign Investment Services Staff, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. P-75426. OPIC.

North England Development Office Opened In New York

The North England Development Council has established a new branch office in New York City to encourage foreign investment in the region. Other offices of the council are currently maintained in Los Angeles and Tokyo as well as the United Kingdom office in Newcastle upon Tyne.

The Northern Region includes Northumberland, Cumberland, Westmoreland, Durham and the North Riding of Yorkshire, an area containing 7,471 square miles with a population of over 3 million. An excellent network of highways, railways and airlines exist in the region and it is in close proximity with the future North Sea oil and gas resources.

A number of foreign companies including more than 75 U.S. firms are currently established in the region. Various financial benefits are available to companies prepared to locate projects in a development or special development area. More details on these incentives and other background on the area is available from: William H. Lawson, The North of England Development Council, 575 Madison Ave., New York, N.Y. 10022; telephone, 212-486-1570; telex, 125864 (Dom/Intl), 237699 (Intl). P-75428.

Licensing In U.S.

For additional information on these opportunities to manufacture foreign firms' products in the United States under a licensing agreement or in partnership, write the Investment Services Staff, Bureau of International Commerce, Room 4020, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-2248) referring to appropriate file number.

ENGLAND—General purpose aircraft. Inventor is seeking U.S. manufacturer to produce prototype with subsequent development into commercially viable aircraft. Inventor is aviator and successful businessman with several clothing manufacturing plants in England. File 2773

GERMANY — Rigid **polyurethane foam board sandwiched between paper, board, metal and plastic foils,** used for window display, shop decoration, insulation of partition walls, posters, screen printing, packaging, model-making, and other. File 2774

GERMANY — Interlocking concrete pavement stones. File 2775

GERMANY — Technology for specialized **corrosion-resistant rubber linings** used with machinery and equipment in chemical industry is for sale. File 2776

GERMANY—Radial and axial ventilators, dust collection and air purification systems and equipment for heating, ventilating and air-conditioning, complete air purification installations for industrial use in gas, paint and varnish industries. Company is seeking cross licensing. File 2777

NORWAY—Patented flexible, brass or aluminum **quick-connect couplings for polyethylene and PVC pipes.** Can be installed with ordinary wrench; no heating or threading is required. File 2778

SWITZERLAND—Novel **mail boxes** in several models with special locking devices. File 2779

Foreign Trade Inquiries

These trade opportunities are based on reports received from the U.S. Foreign Service—Department of State by the Trade Opportunities Division, Room 2323, U.S. Department of Commerce, Washington, D.C. 20230. The commodities in which foreign firms have interest are indicated by the five-digit numbers and commodity classifications which are from the Standard Industrial Classification (SIC) Manual and the Numerical List of Manufactured Products, 1972 Census of Manufactures.

U.S. firms should be aware that the listing in Commerce Today *of opportunities to trade in specific commodities and technical data does not necessarily imply approval of their export by the Department of Commerce pursuant to the Export Administration Act of 1969. Applicable export licensing regulations must be followed.*

Every effort is made to include only traders with good reputations. However, the Department cannot be responsible for any trade relations.

WTDR indicates that a World Traders Data Report on this specific firm is available at $15 from the Export Information Division, Room 1313, U.S. Department of Commerce, Washington, D.C. 20230. A WTDR is a trade profile which contains commercial information including financial references, on an individual foreign firm. Orders must include complete name and address of the subject firm and be accompanied by payment. Further information concerning WTDRs and request forms are available at each Commerce District Office.

The mark (•) indicates that this trade opportunity is a request for bids by a foreign government agency.

Direct Sales

Construction

• **16100, 16200 — LIBYA** — The Central Tender Board invites contractors to bid for construction of Ghat Airport, which consists of runways, taxiways, communications system, and other airport necessities (Tender No. 22/75). Ghat is a small town in far southern end of Libyan border with Algeria and Mali. Tender documents obtainable upon payment of LDS 200 (US$690) from Civil Aviation Administration, Assaydi St., Tripoli. Tender must be accompanied by guarantee of not less than one percent of total value of bid. Tender is indivisible. Interested firms must be registered in Contractors' Register of Ministry of Housing or be represented by registered firm. Tenders must be accompanied by certificate of experience and technical and financial status of bidding firm. Bids due by Aug. 25, at Central Tender Board, Suliman El-Barouni St., Tripoli.

• **16100—PANAMA**—Tender for construction of 41.4-kilometer road, including grading, fill, drain pipe, culverts, bridges, base material and asphalt paving. Route is from Pedasi through Los Asientos to Canas along Pacific Coast at eastern tip of Los Santos Province. Estimated value of contract $15 million. Project (M-B-1-75) financed in part by Inter-American Development Bank loan. Interested firms must present certification of

technical and financial qualifications prior to bid opening, in accordance with "Pliego des de Bases y Condiciones Especificas." Bid documents obtainable in person or through local representative for certified $200 check payable to Ministerio de Obras Publicas III Programa MOP-BID, Fondo Rotativo from Direccion Nacional de Construccion, Ministerio de Obras, Publicas, Calle 50 y Calle 88, San Francisco, Edifico de la Aduana del Ministerio de Haciendo y Tesoro, Panama. Deposit is 80 percent refundable to bidders who return documents within 45 days of bid opening. Bid deadline July 29.

• **16100 — UNITED ARAB EMIRATES —** Tender for construction of approximately 60-kilometer-long single carriage asphaltic concrete road from Beda Zayed to Liwa (A' Mariah). Financed by Abu Dhabi Development Budget. Bid deadline Aug. 27. Copies of telegram from American Embassy in Abu Dhabi which provides information on bid procedures available from Construction & Building Materials Program, Room 2118, U.S. Dept. of Commerce, Washington, D.C. 20230 (202-967-3602), and U.S. Dept. of Commerce District Office, 11444 Federal Bldg., 450 Golden Gate Ave. P.O. Box 36013, San Francisco, Calif. 94102 (415-556-5860).

Heavy construction

• **16200 — ECUADOR** — Tender for construction of one 43-kilometer, 22-kv electric transmission line; one 356-kilometer, 13.8 kv electric transmission line; and two 60-kilometer distribution networks. Tender also includes electric distributing equipment required. Specification available for nonrefundable $40 from Empresa Electrica Regional del Sur, P.O. Box 150, Loja, Ecuador. Three-year financing required to cover 70 percent of cost of equipment. Therefore, only firms with locally-established agencies should participate in this tender. WTDR (74-078) on Empresa Electrica Regional del Sur, Loja, is available from U.S. Dept. of Commerce.

• **16200—MOROCCO**—Preselection of firms wishing to participate in bidding on construction of port for handling ore exports from Jorf Lasar (about 110 kilometers south of Casablanca). Applications must be in French, in accordance with preselection file, and sent to Monsieur le Ministre des Travaux Publics et des Comminications, Rabat. Project is financed by Moroccan National Investment Budget. Copies of preselection file may be obtained from Moroccan Embassy, Washington, D.C.

• **16200 — MOROCCO** — Tender for constructing, equipping, and putting into operation Sidi Cheho Dam Hydro-Electric Plant, on Om Er Rebia River. Consists of two 60-MW groups and one 225-kv transformer station. Bidding is for turnkey project. Tender identification is 14 400. Financed by Moroccan State Investment Budget. Complete bidding file including specifications, technical description and drawings may be obtained from Office National de l'Electricite (ONE), Service Apprivisionnements, 65, rue Aspirant Lafuente, Casablanca; cost is DH 1,150 (approximately US$300) plus postage. Correspondence preferred in French. Bid deadline Nov. 15.

• **16200—TANZANIA** — Prequalification of experienced contractors for construction of lighter wharf in Tanga Harbour. Works will comprise construction of approximately 240-meter quay wall in front of existing loading facilities. Works likely to be tendered as (a) steel sheet piled wall or (b) open type quay wall with precast concrete elements. Project to be financed with World Bank loan. Contractors interested in prequalification registration should submit required company data to both of following addresses: Bish & Partners B.V., P.O. Box 2278, The Hague, Netherlands, and Bish & Partners B.V., P.O. Box 1821, Dar Es Salaam, Tanzania, by July 17. Copies of prequalification notice available from Construction & Building Materials Program, Room 2118, U.S. Dept. of Commerce, Washington, D.C. 20230 (202-967-3602).

The price of sales notices sent to firms enrolled in Commerce's Trade Opportunities Program has been increased from 50 to 75¢ each, and a "file creation" fee of $25 instituted for new subscribers, effective July 1. For further information contact the Trade Opportunities Program, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-2091).

• **16200—PARAGUAY & ARGENTINA**—Entidad Binacional Yacyreta (EBY) issues bids for flood control study of Parana River as follows: investigation of flooding problem itself; estimate of economic cost of flooding; and recommendations as to alternative solutions to reduce or eliminate damage and cost. EBY is a joint Paraguayan-Argentine administrative entity which represents Administracion Nacional de Electricidad (ANDE), Paraguay and Agua y Energia Electrica, Argentina, respective electric power utilities responsible for construction of Yacyreta-Apipe hydroelectric project, with estimated total cost of $2.8 billion. Entity calls for simultaneous registration of specialized and independent firms of countries which maintain diplomatic or consular relations with Paraguay and Argentina. By binational regulations, a consulting firm must incorporate into its professional staff not less than 60 percent of Paraguayan and Argentine professionals for this project. Est. cost of this tender varies from $1.5 to $3 million. Specifications available in Asuncion at below address for guaranies 20,000 ($160). Additional set guaranies 15,000. Bid deadline is Sept. 5. Register with Senor Magno Ferreira Falcon, Entidad Binacional Yacyreta, Direccion Finanuera, Calle Humaita 357, Segundo Piso, Asuncion, Paraguay and Entidad Binacional Yacyreta, Avenida Roque Saenz Pena 501, Quinto Piso, Buenos Aires.

Logging camps, logging contractors

• **24110—IRAN**—Iranian State Railways request bids on 5,000 pieces of creosote treated wooden timbers of 11 meters in length with a top diameter not less 15 cm. Bid deadline 9 a.m., July 30. Official documents for tender number 27/54 are available from Purchasing Dept., Iranian State Railways, Tehran, by submitting a bank receipt of 200 rials to the Iran State Railways account number 1039 in the Markazi Bank, Iran. A photocopy of the documents are available from the Construction and Forest Products Division, Department of Commerce, Washington, D.C. 20230, (202-967-2606).

Converted paper, paperboard products

• **26400—ETHIOPIA**—State Trading Corporation, Ethiopian Import-Export Corp., P.O. Box 1897 (Telex 21041), Addis Ababa, requires 280,000 kilograms of single-ply toilet tissue, rolls, in retail packages, regular type. Sample should be sent air freight. Brand name, price per unit of sale f.o.b. or c.i.f. Ethiopian ports. Terms of payment and discount scheme, if any, should be included in quotation. Bid deadline: soon as possible. Bids should be mailed to Manager, at above Addis Ababa address. Further details available from U.S. Department of Commerce, Washington, D.C. 20230 (202-967-3530).

Drugs

• **28340 — BOLIVIA** — Supply of large quantity of pharmaceutical preparations for human use. Tender No. 4/75, bid deadline Aug. 11. Departmento de Compras, Caja Nacional Seguridad Social, Casilla 697, La Paz. Copies of tender specifications may be obtained from organization cited above. Interested firms must have Bolivian representative in order to participate in this tender.

• **28340 — SRI LANKA** — Supply of large quantity of pharmaceutical preparations. Tender No. DHS/6/1, bid deadline July 31. State Pharmaceuticals Corporation of Sri Lanka, 2 Gregory's Ave., Colombo 7, Sri Lanka. Tender available from Materials Division, Bureau of Domestic Commerce, Washington, D.C. 20230 (202-967-3910).

Chemical products

• **28900—BURMA**—Chemicals for laboratory use; 52 items in list of organic and inorganic reagents. Tender number 2597/Q. No. 1-2-56/DGSE. Bid deadline July 31. Directorate of Geological Survey and Exploration (Procurement Division), Kanbe, Yankin P.O., Rangoon. Invitation for quotation available from Chemicals and Rubber Program, Materials Division, BCABP, Room 2130, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-3464). Review copy available at U.S. Department of Commerce Field Office, Federal Building, Box 36013, 450 Golden Gate Ave., San Francisco, Calif. 94102 (415-556-5864).

Fabricated rubber products

30697—HONG KONG—Hot water bottles; condoms. Provide quotes, samples & catalogs. Recently estab. trading subsidiary of drug & sundry retail firm. Parent firm has well-established contacts in Hong Kong medical community. Reply to—Alan Y. L. Miao, Union Trading Co., 235 Man Yee Bldg., Hong Kong.

Steel mill products

• **33100—IRAN**—Supply of soft steel wire and high tensile strength steel wire. Tender No. S-178-SB; bid deadline July 29. Ministry of Energy, Satkab Co., 41/1 Avenue Takhte-Djamsttid, Tehran. Tender documents available at above address at a cost of 2,000 rials.

• **33100—INDIA**—1,930 mt. cold rolled/hot steel sheets in various sizes. Tender No. S-147 of 1975; bid deadline July 29. Railway Board, Rail Bhavan, Raisina Rd., New Delhi, 110001. Tender documents available from Iron and Steel Program, BDC, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-2438).

• **33100—INDIA**—Various sizes and quantities of corrosion resistant steel sheets, cold or hot rolled, pickled and oiled. Tender No. S-146 of 1975; bid deadline July 22. Railway Board, Rail Bhavan, Raisina Road, New Delhi 110001. Tender documents available from Iron and Steel Program, BDC, U.S. Department of Commerce, Washington, D.C. 20230, (202-967-2438), or India Supply Mission, 2536 Mass. Ave., NW., Washington, D.C. 20008, at $2.50 per set.

• **33100, 33200—GHANA**—Supply of steel pipes in short lengths and wide size range; valves; cast iron pipe fittings and accessories for water transmission mains. Tender No. MS/2; bid deadline July 31. Ghana Water and Sewerage Corp., Accra/Tema Water

Supply Project, P.O. Box 1840, Accra. Tender documents available at above address at $50.

• **33100—SRI LANKA**—Various sizes and quantities of base metal (jumper steel bars and channel iron). Tender No. COM/TEN/75/72; bid deadline July 29. Sri Lanka State Trading Corporation, 119 Wekande Rd. Colombo 2. Tender documents available from Iron and Steel Program, BDC, U.S. Department of Commerce, Washington, D.C. 20230, (202-967-2438).

Iron, steel foundries

• **33200—NICARAGUA**—2,000 meters of cast iron ductile pipe, 24-inch diameter, plus elbows and ties. Asbestos-cement pipe and accessories, 9,000 meters 4-inch diameter, 9,000 meters 6-inch diameter, 7,000 meters 8-inch diameter and 10.000 meters 12-inch diameter. Also, 155 gate valves, 2 to 12 inches; 10 butterfly valves, 16 and 24 inches; 52 divided sleeves; insertion valves 4 to 24 inches. Tender No. 14A-14B-14C; bid deadline Aug. 28. Empresa Aguadora de Managua, Km. 5 ½ Carretera Sur, Managua. Tender documents available at above address at a cost of $10 plus $3 for air mail.

Rolling, drawing, & extruding of nonferrous metals

• **33500—SRI LANKA**—Various sizes and quantities of insulated cables and wires for electricity. Tender No. COM/TEN/75/71; bid deadline July 31. Sri Lanka State Trading Corporation, 119 Wekande Rd., Colombo 2. Tender documents available from Copper, Lead and Zinc Program, BDC, U.S. Department of Commerce, Washington, D.C. 20230, (202-967-2438).

• **33500—IRAN**—Various sizes and quantities of cable. Tender 130 & 131/54; bid deadline Aug. 4. Iranian State Railways, Tehran. Tender documents available from Iron and Steel Program, BDC, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-2438).

Fabricated structural metal products

• **34430—ALGERIA**—Supply of four steam generators for food processing plants. Bid deadline July 25. Tender documents available for $38.75 from Monsieur Le Directeur Technique, Sogedia, 8 Rue Rene Telloy, Algiers. Tender documents (in French) available on short-term loan basis to firms located in U.S. from Transportation and Capital Equipment Division, BDC, Room 2814A, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-5652).

Engines, turbines

• **35110 — ARGENTINA** — Supply and installation of 12 gas turbine generator sets—two 15-20 MW and two 23.5-34 MW on Tender No. 122/75; and five 15-20 MW and three 23.5-34 MW on Tender No. 123/75. Bid deadline Aug. 12. Oficina De Licitaciones, Departmento De Compras y Suministros, Agua y Energio Electrica, BME Mitre 784, 2 Piso, Of. 203, Buenos Aires. Tender copies available from above address for $1,500 Arg. pesos (U.S.$1=33 Arg. pesos) each copy.

Special industrial machinery

• **35510—BURMA**—Renovation of rice mills and warehouse construction. Supply of assorted rice mill machinery and equipment including six steam (power) boilers, two sets of complete steam boiler and engine with capacities for producing 120 BHP, 10 P.I.V. gear boxes, two complete units of paddy separators, six units of rice whitening machines, 10 units of screw conveyors, six column driers with oil burners, 300 paddy separator springs, various sizes and quantities of steam pipes and control valves, 7,600 ball bearings of various sizes, 30 tons of m.s. channels, 15 tons of m.s. angles, 20 tons of m.s. plates, 40 tons of m.s. sheets, 50 tons of m.s. polished shafting, 15 tons of blue plannished steel sheets, four tons of welding electrodes, 2,000 pounds of white anti-friction bearing metal, 20 slip-ring type induction motors, 10 squirrel cage induction motors, 30 step-down 2-phase electric transformers, and 25 single phase, 5 k.w. electric generators. Bid deadline July 30. Tender number T-29. Financed by Asian Development Bank credit. One copy of bid documents and specifications available for review in Room 2808, Transportation and Capital Equipment Division, U.S. Department of Commerce, Washington, D.C. 20230, (202-967-5566). Interested U.S. firms may request specifications, reference: 546/01/T/0092, from American Embassy, 581 Merchant St., Rangoon, enclosing check for $21 per set, payable to American Embassy, Rangoon. Additional details available from General Manager, Trade Corporation No. 1, 70 Pansodan St., Rangoon.

• **35510—TURKEY**—Bread bakery equipment: a) Two dough kneading machines. Wheel-mounted portable tub with 80-95 kg. flour capacity, complete with 10 extra tubs. b) Two dough pat cutting machines: 300-1500 gr. adjustable loaf sizes, 900 pcs/hour capacity. c) Two loaf forming (rolling) machines: suitable for rolling and forming 300-1500 gr. pats into any desired loaf shape at speed of 900 pcs/hour. d) Two tub elevators: portable lifting-tubing unit to elevate dough tubs of kneader per item and dumping dough into cutter per item. Bid deadline July 22. Tender number T-0142. Bidding specifications may be obtained in English from: Modern Translation Bureau, Karanfil Sokak 36/3, Yenisehir, Ankara, for $8.50. Checks, payable to Modern Translation Bureau, must accompany orders. Prices in FB or CF-Istanbul. Payment by L/C. Equipment required for Turkish Naval Forces Command.

General industrial machinery

• **35610—TANZANIA**—Pumps—Supply of 228 surface pumping units, centrifugal or rotary type, diesel and electric driven, complete with motors, engines, and accessories. Pumping capacity ranging from 15 to 120 cubic meters of water per hour from ground level to various elevations. Bid deadline July 24. Specifications must be closely followed. Write: Secretary, Tender Board, P.O. Box 49. Dar es Salaam, Tanzania. Cite: No. 8/75 (Maji).

Electrical industrial apparatus

• **36210 —S UDAN** — Supply, erection and commissioning of three 5 MW diesel generating sets and associated equipment. Contract No. CEWA/HQ/190/75 (P.11 106 and P.11 107). Uugciete General Pour, Industrie Consultion Engineers, 71 Avenue Louis Casai, 1216 Geneva, Switzerland. Tender documents can be obtained from above address for 500 Swiss francs per set.

Communications equipment

• **36610—ETHIOPIA**—The Board of Telecommunications of Ethiopia (BTE), P.O. Box 1047, Addis Ababa, has issued tender No. 7/75 for 3,000 each desk type magneto telephone apparatus with hand generator for connection to magneto switchboards. Bid deadline is Aug. 28. Project financed by IDA loan. Copy of specifications available from above address for $9, or on a short-term loan basis to firms located in the U.S. from the Science and Electronics Div., Room 1001, U.S. Department of Commerce, Washington, D.C. 20230, (202-967-5569).

• **36610 — INDIA** — The Director General, Post & Telegraphs, Parliament St., New Delhi-110-001, has issued tender No. 12-119/75-MMD for five frequency measuring equipment and two automatic receiving equipment for radio telephone alarm signal. Bid deadline is Aug. 19 at 4 p.m. (IST). Tender documents available from above address for $2.74.

• **36610—MALAYSIA** — The Telecommunications Department Headquarters (Telex/Data Section) Bukit Mahkamah, Kuala Lumpur 05-01, is requesting bids for the supply of frequency modulated voice frequency telegraph equipment. Each system must be capable of providing 24 channels of 50 band, 12 channels of 100 band and 6 channels of 200 band or combination. Bid deadline is Aug. 19. Additional information is available to firms located in the U.S. from the Science and Electronics Div., Room 1001, U.S. Dept. of Commerce, Washington, D.C. 20230, (202-967-5569).

• **36610—NICARAGUA**—The Oficinas Del Comie De Planeamiento (TELCOR), Direccion General De Telecomunicaciones, 4To. Piso-Palacio de Comunicaciones, Managua, has issued tender No. TELCOR 1-75 for three mobile telephone exchange centrals, 1,000 lines each; five mobile radio transmission centrals, initially equipped with seventy-two channels each, including radio and multiplexing equipment. Bid deadline is Aug. 4. Above purchases estimated at $2.9 million from a $3.7 million loan from Cabei. Bid documents available for $100 from above address.

• **36610 — TURKEY** — Deniz Kuvvetleri Komutnaligo, Ikmal Dairesi Baskanligi, Tedarik Subesi Mudurlugu, Ankara, has issued a tender for one telephone switchboard: automatic private exchange with 1,000 extension lines, with expansion possibility for up to 4,000 lines; 50 outside lines; four operator's consoles; two 50-line long distance operator's consoles (automatic manual). Bid deadline is Aug. 20. Copy of bidding specifications may be obtained in English from Modern Translation Bureau, Karanfil Sokak 36/3. Yenisehir, Ankara, Turkey for $12.50.

• **36610 — IRAN** — Iranian State Railways has issued Tender No. 108/54 for supply of 85.000 meters of telephone cable of various sizes. Bid deadline Aug. 3. Specifications available on loan basis to firms located in U.S. from Science and Electronics Division, BDC-466, Room 1001, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-5569).

36620—JAPAN—Kyodo Denshi Kaisha, officially registered procurement agent for Japan Air Self Defense Force, seeks distributors of electronic parts for military aircraft. Interested firms contact the company at Kano Bldg., Room 707, No. 19-20, Uguisudani-Machi, Sjibuya-Ku, Tokyo 150 (Telex 222-4437).

• **36620—PERU**—Seguro Social Del Peru, Av. Salaverry 1291, Lima 11, is requesting bids for supply of radio communications system, consisting of base station, transceivers, power amplifier and antennae. System will be used to communicate with doctors throughout Lima metropolitan area. Interested firms contact above address soon as possible.

Electronic components, acessories

• **36730 — AFGHANISTAN** — M. Rahim, president, Administrative Dept., Ministry of Communications, Kabul, has issued tender No. 443 for the supply of electronic tubes as follows: Four pieces of P1300 or P2600; fifteen pieces of P2/40 and thirty pieces of VX550 or DCXY/1000 or DCGY/1000. Financed from general revenue.

Railroad equipment

• **37430 — SOUTH AFRICA** — Government invites firms to bid for supply of 150 third-class compartment type main-line coaches, Type H3. Tender No. 1020 70922. Bid deadline Aug. 29. Tender documents available from Chief Stores Superintendent, Rm 3, Melhof, 2 Melle St., Braamfontein, Johannesburg, against payment of deposit of R50 per set and R50 per additional set. Drawings may be purchased for R100 per set, not refundable.

Engineering, laboratory, scientific, research instruments

• **38110 — BURMA** — The Director-General Geological Survey and Exploration, Rangoon, has issued tender No. 2/56/D.G.S.E. for the supply of spares for lab apparatus, to include beakers, test tubes, volmetric flash, spatulas, spare parts for mineralight, bulbs for microscopes, and related items. Bid deadline is July 20. Copy of specifications available on a short-term loan basis to firms located in the U.S. from the Science and Electronics Div., Room 1001, U.S. Dept. of Commerce, Washington, D.C. 20230, (202-967-5569).

• **38110—TURKEY**—Milli Savunma Bakanligi, Tedarik Dairesi Baskanligi, Ankara, is seeking bids for supply of laboratory equipment, such as testing instruments, signal and wave generators, digital counters, soil and construction material, machine tools, and arc welders. Bid deadline Aug. 4. Specifications in English may be obtained from Modern Translation Bureau, Karanfil Sokak 36/3, Yenisehir, Ankara, for $8.50.

Instruments for measurement, analysis and control

• **38250—TURKEY**—The Deniz Kuvvetleri Komutanligi, Ikmal Dairesi Baskanligi, Tedarik Subesi Mudurlugu, Ankara, is seeking bids for measuring instruments: 20 each, two types of signal generator; 40 each, two types of oscilloscope: 30 each, tube testers; 30 each, frequency counters; 20 each, clamp-on ammeters; 50 each, meggers; 50 each, multimeters. Copy of specifications available from Modern Translation Bureau, Karanfil Sokak 49/2, Yenisehir, Ankara, for $20.

Surgical, medical, dental instruments

• **38400—EL SALVADOR**—Departmento de Suministros del Ministerio de Salud Publica y Asistencia Social, Calle Arece 827, San Salvador, has issued tender No. 30/75 for supply of medical, odontological and infirmary equipment, instruments and furniture to equip 50 four-bed health posts; 2 health units; supplies to consist of 22 binocular microscopes, 94 stethoscopes, 72 blood pressure apparatus; 22 dental professional equipment, including dental chairs, etc. Cost estimated at $500,000. Bid deadline Aug. 25. Funds from IDB Loan Contract No. 393/SF-ES. Copies of tender documents and specifications available on short-term loan basis to firms located in U.S. from Science & Electronics Div., BDC-466, Room 1001, U.S. Dept. of Commerce, Washington, D.C. 20230. (202-967-5569).

Photographic equipment, supplies

• **38610 — IRAQ** — Director of Contracts and Purchases, Ministry of Defense, Baghdad, has issued tender No. 19/75 for supply of 222 Epidiascope projectors suitable for both episcopic and diascopic projections; 198 diascriptor projectors for daylight projection. Bid deadline Aug. 25. Copy of specifications available on short-term loan basis to firms located in U.S. from Science & Electronics Div., BDC-466, Room 1001, U.S. Department of Commerce, Washington, D.C. 20230 (202-967-5569).

Manufacturing industries

3999611/93 — GERMANY — Unprocessed pelts of U.S. origin for mfg. fur apparel. Terms of delivery & payment will be subject to negotiations. Founded 1868. Mfr. wholesaler, exporter & importer of fur apparel. Employs 80 plus 3 salesmen, has average sales of DM 7 million. Enjoys good reputation. Considered suitable trade partner. Reply to—Juergen Spoerl, Adolf Spoerl U. Co., 8671 Schwarzenbach/wald, Nordstrasse 10. Tel. 09289/851.

Antique, secondhand stores

5931XXX — JAPAN — Japanese curios & antiques which were exported to U.S. after World War II. Importer/dealer/exporter of curios & antiques. Annual sales $300,000. Ref. Dai-Ichi Kangyo Bank, Nagoya Branch, Nagoya. Reply to—Minoru Tanaka, Pres., Tanaka Curios & Antiques Shop, 8 Shinsakae-Machi 7-Chome, Naka-Ku, Nagoya 460. Cable: Antique Nagoya; tel. 052-935-8140.

59310—JAPAN — Japanese antique swords, chinaware, "Yoroi" armour, paintings, etc. Est. annual purchase $30,000. Wishes reimport 100 year old Japanese antiques which were exported to U.S. before & after World War II. Will estab. firm to deal in Japanese antiques. Annual sales $100,000. Ref.: Tokai Bank, Nagoya. Reply to—Toshihiro Sumi, 95 Mori, Takatomi-Cho, Yamagata-Gun, Gifu Prefecture 501-21. Tel. 0512-2-1539.

Motion picture distribution

7823XXX — HONG KONG — Motion pictures, 8 and 16 mm: educational, scientific, military and military sciences, films on USSR, Japan, Taiwan. Firm, well established book store, has identified market for these films. Provide catalogs and price lists. WTDR in prep. Reply to—Z. L. Wong, Managing Director, Apollo Book Company, Ltd., P.O. Box 5710, Flat A, 2nd Floor, Wing Lee Bldg., 27-33 Kimberly Road, Hong Kong. Cable: APO Book Hong Kong; tel. 3-678414. Co. Ref. 75/888 file 89.

Indian Development Corp. Seeks Know-How, Equipment

The Assam Industrial Development Corporation, Ltd. (AIDC) proposes to build facilities for production of the following products in Assam State: Synthetic detergents; magnetic tapes, photographic film and X-ray plates; graphite anodes; melamine, 5,000 tons per year; carbon black, 12,500 tons per year; and starch, 7,500 tons per year and glucose, 2,500 tons annually, using maize as raw material.

Dr. D. N. Das, Project Manager, AIDC, is traveling in the United States and can be reached July 11-18 at the Indian Consulate General, 3 E. 64th St., New York; telephone, 212-879-7800. Address of Dr. Das in India is Assam Industrial Development Corporation Ltd., Silpukhuri, Gauhati 781003, Assam, India. Correspondents may wish to send copies of their letters to the Commercial Officer, U.S. Consulate General, Calcutta, for follow-up action. P-75442. OPIC.

Panama Needs Equipment, Structure For Substation

Panama's Instituto de Recursos Hidraulicos y Electrificacion (IRHE), Poli Bldg., Justo Arosemena Ave. & 27 East St., Panama City, issues bid for supply, delivery and unloading of electromechanical equipment and steel structure for the second stage of the Maranon and Cerro Viento Substation. Bid No. is 478-75, deadline July 31. Bid documents, maps, plant, specifications and proposal forms may be inspected at IRHE's offices in Panama; Chas. T. Main International, Inc., Prudential Center, Boston, Mass.; Stone & Webster Overseas Consultants, Inc., 90 Broad St., New York, N.Y. 10004; or at Panamanian Embassies. The complete set of documents may only be obtained directly from IRHE in Panama or from P.O. Box 5285, Panama, for a non-refundable payment of $25 per set. IRHE has received a loan from IBRD in various currencies equivalent to $30 million towards the foreign cost of the electrification programs of IRHE.

Future Construction Abroad

GHANA—Colonel P. K. Agyekum, Commissioner for Transport and Communication, Accra, announced that a **number of projects** would be implemented by various departments and corporations for which his office is responsible. These include: Extension of Kumasi Airport runway from 4,500 to 6,500 ft. and Kotoka International Airport runway at Accra (length extension not specified). Approx. $1,054,000 has been voted by government for Kotoka runway extension. Importation of 12 shunting diesel hydraulic locomotives for electric rail transportation systems. Construction of earth satellite station at Kimtumase (northwest of Accra). Installation of telex exchanges at Tema, Kumasi, and Takoradi and replacement of present Accra exchange with new one of 400-line capacity. OPIC.

ALGERIA—Algerian State Mining Corporation is taking bids for prequalifying to **increase production of existing mines and treatment plants** for kieselguhr (one variation of 4,000 metric tons per year and the other of 65,000), bentonite (80,000 metric tons per year), and clays and to develop pearlite "expansee." Offers should be submitted by registered mail to Division Engineering et Developpement, Sonarem, Rue Hameg Idir, Cing-Maisons, El-Harrach, Algiers (Cable Minebar Alger, Telex 52910). All correspondence should be in French, with specifications in metric units. A tender document in French will be available for review with Ms. Cherie Loustaunau, Rm. 6015B, U.S. Dept. of Commerce, Washington, D.C. 20230, 202-967-4441.

IRAQ—The government is accepting bids on turnkey construction of a **water supply scheme** in the town of Tikrit on the Tigris River. Estimates are that Tikrit's future consumption of water will be 2.9 million gallons per day. Offers are due by July 26 and should be mailed to Director General of Water and Electricity Projects, Ministry of Municipalities, Baghdad. Tender documents will be available for review with Ms. Cherie Loustaunau, Rm. 6015-B, U.S. Dept. of Commerce, Washington, D.C. 20230, 202-967-4441.

BOTSWANA—The government invites tenderers for construction of a **59 km. road**

between Francistown and Serule parallel to the existing road and railway. Pavement will consist of a gravel sub-base, a stabilized gravel base course and surface dressing. Contract will include concrete structures crossing main water courses including the Shashe and Tati rivers. Completion time will be 24 months. Financed with German Government loan. Companies interested in prequalifying required to complete questionnaire within next two months detailing resources and experience. Copies of questionnaire available from J. Halcro-Johnston, Senior Civil Engineer, Shashe Project Management Unit, P.O. Box 345, Gaborone, Botswana. Cost of project is approximately $2,750,000. OPIC.

PANAMA—Firms interested in supply of material or construction of **21.1 km. section of the Inter-American highway** extending from near Tecumen International Airport east to Rio Senora may without cost obtain preliminary information from Carretera Panamerican, P.O. Box 2015, Panama 1, R.P. Financed by U.S. and Panamanian governments in collaboration with IADB, Eximbank and First National Bank of Chicago. Plans, specifications, and conditions may be examined at U.S. Department of Transportation, Federal Highway Administration, Rm. 3214, 400 7th St., SW., Washington, D.C. 20591, and at Ministerio de Obras Publicas, David, Province of Chiriqui, Panama. Documents may be obtained upon deposit of $400 with Ministerio de Obras Publicas. Deadline is July 30.

MEXICO—A private Mexican firm, Fundidora Monterrey S.A., Apartado Postal 206, Adolfo Prieto al Cte., Monterrey, has received a $105 million credit to balance local cost content of a **$200 million expansion program.** Annual output of steel will be increased from present 900,000 tons to 1,500,000 tons by end of 1976. Credit was granted by an international banking consortium (headed by Bank of America, Financiera Banamex, S.A., and Brandts, Ltd., and including some 20 banking entities of U.S., Mexico, Canada and England).

PAKISTAN—A new two million-ton per year oil refinery and pipeline complex planned for construction in the next three years is expected to cost a total of $200 million. U.S. firms have already been hired to provide engineering and consulting services for the project, which will be a joint venture between the Government of Pakistan and the Abu Dhabi National Oil Co. Pipeline will be approx. 500 miles long, stretching from port of Karachi to city of Multan, will be of 16-inch diameter, will have two intermediate pumping stations in initial stage and will include tank field in Karachi. An estimated 50,000 tons of line pipe will be required, as well as other materials and equipment. Foreign exchange component of pipeline project is $70 million. Final designs for the refinery are anticipated in early 1976, with construction to begin shortly thereafter. Refinery will be capable of processing 2 million tons crude per year to produce motor spirits, naptha, middle distillates, furnace oil and LPG based on input of Abu Dhabi crude. About $65 million will be foreign exchange. Interested suppliers contact M. A. Allawala, Managing Dir., Pak Arab Refinery Ltd., P.O. Box 4557, Karachi, Tel: 515322; Telex: ENAR KR 741; Cable: PARCO; or, Dr. A. A. Faruqui, Gen. Mgr., ENAR Petrotech Services Ltd., P.O. Box 8513, Saeeda Chambers, Drigh Rd., Karachi, Tel: 418350; Telex: ENAR KR 741; Cable: ENARTECH. OPIC.

THAILAND — Electricity Generating Authority of Thailand (EGAT), Nonthaburi, is negotiating with Asian Development Bank (ADB) for loan of $15 million to finance foreign exchange component of cost overrun from **Mae Moh Power Project (Stage 1),** which was also financed by ADB. Procurement for this supplementary project will include: heavy equipment for extension of existing lignite mine at Mae Moh in northern Thailand; construction of earth dam, 16 meters high and 330 meters long; installation of 310-ton per-hour capacity steam generator and auxiliaries; installation of 75-MW turbo-alternator and auxiliaries; power transformers, switchgear, measuring and control equipment, and control center; secondary machinery and appliances for operation and maintenance of above equipment; construction of 120-kilometer transmission line of 115 KV. Total cost of this additional project, scheduled to be completed by end of 1977, is $32.4 million. OPIC.

ARGENTINA—Agua y Energia Electrica—A y EE (the State-owned power co.), Lavalle 1554, 4° Piso, Buenos Aires, plans to construct a **hydroelectric power plant** on the Tunuyan River, about 140 Kms. southwest of city of Mendoza, with total installed capacity of 284 MW, designed to generate approx. 741 GWh/yr. Project will consist of "Los Blancos" dam, which will be built in middle sector of Tunuyan River, covering an area of 128 hectares, and will have frontal spillway with discharge capacity of 1,515 m3/sec.; power station to be located 11 Kms. downstream; and "Los Tordillos" compensating dam (similar to "Los Blancos"), which will cover 18.5 hectares and be located 15 Kms down river from power stations. A y EE has decided to tender entire project and estimates that call for bids will be in August.

MEXICO — Federal Electric Commission (CFE), Mexico's electric energy agency, has launched an ambitious, long-range **expansion plan designed to enlarge the country's electric power generating capacity.** The fifth and current stage of this program provides for construction of several new power plants and substations, installation of new transmission line networks and completion of comprehensive rural electrification project. CFE is negotiating a $125 million loan with IBRD to provide basic support for expansion effort; if approved, it will be used to purchase a full range of electrical supplies, including heavy generating equipment, substation parts and transmission lines. Tenders expected to begin second half of 1975 and continue through mid-1977. U.S. companies interested in tendering for CFE projects should contact one of the following individuals at Federal Electric Commission, Rodano 14, Mexico 5, D.F.; Lic. Enrique Vilar, Gen. Mgr. of Finance; Ing. Alfredo Granados Ordonez, Gen. Mgr. of Supply & Construction; or Ing. Hugo Viso, Gen. Mgr. of Credit.

BOLIVIA—Comite de Obras Publicas de Santa Cruz has started feasibility study to establish **lumber complex** to produce yearly: plywood, 20,000 cubic meters; furniture and hand tool parts, 1,000,000 pcs.; parquet, 400,000 meters. Study is to be completed by end of August. Interested equipment firms should forward literature to: Ing. Raul Quintela V.D., Comite Lepartamental de Obras Publicas, Casilla 218, Santa Cruz. OPIC.

The Overseas Private Investment Corp. (OPIC) offers political risk insurance to U.S. construction firms planning to submit bids on projects in certain developing countries, identified by the "OPIC" notation at the end of some items. For further information on OPIC's construction insurance program, write Information Officer, Overseas Private Investment Corp., Washington, D.C. 20527. Tel: 202-632-1854.

JAMAICA—The government has approved plans for construction of **new radio and television complex** for Jamaica Broadcasting Corp. (JBC). Plans include construction of 80,000 sq. ft., three-story bldg. at site near Jamaica's National Stadium, provision of three more television broadcast channels, installation of new transmitters to serve both AM and FM radio as well as television, and transmitter maintenance for Radio Jamaica. Overall cost of this phase of development is U.S.$10 million; work is expected to start during 1975-76 fiscal year, during which time JBC is to buy U.S.$1.1 million of transmission equipment. This part of the program, which includes replacement of some present equipment for black and white television, is to be completed by 1978. Plans involve replacements of existing television and AM radio transmitters; establishment of 4 new TV, 3 new AM radio, and 2 new FM radio transmitters; establishment of two television outside broadcast units, two radio outside broadcast units, one studio unit and a radio car. Second phase, which has not yet been approved, involves introduction of color television, and is expected to cost U.S.$8 million. Interested U.S. suppliers contact: Dwight Whylie, Gen. Mgr., or Newton James, Chief Engineer, Jamaica Broadcasting Corp., 5 South Odeon Ave., Kingston 10. OPIC.

JAMAICA—Engineers, geologists and other technical personnel of Governments of Jamaica and Venezuela are collecting samples for testing to determine suitability of proposed site for Jamaica's second **cement plant.** A definite site has not yet been named. Current testings are to be completed by September and tenders for construction invited by October. Plant is expected to be completed 18 months from start of construction, and present timetable calls for production of cement to start by second or third quarter of 1977. Est. cost is U.S.$55 million, to be met 70 percent by Jamaica and 30 percent by Venezuela. Interested U.S. firms contact: Lawrence Wells, Sr. Economist, Jamaica Industrial Development Corp., 4 Winchester Rd., Kingston 10; Roderick Rainford, Chief Economist, Ministry of Industry, Tourism & Foreign Trade, National Heros Circle, Kingston 4. OPIC.

GERMANY—Herr Pensel, Mgr., Unitrade Aussenhandelsgesellschaft MBH, 5 Koeln 1, Vinzenz Statz Str. 7, has requested assistance in locating potential U.S. firms for design, construction and equipping of **plant for manufacture of fire resistant household glass articles.** Project should include supply of machinery and know-how, as well as training of employees, and plant should be capable of producing 3,500-5,000 large household glass products, and 5,000-10,000 smaller household glass items per year, be fully automatic and require minimum of employees. Offers of U.S. suppliers should include: details of technology, prices for machinery and equipment, percentage of scrap output, detailed prices for molds and spare parts, number of employees engaged in production process, and patent rights of own or third sources.

GABON—Director General of Ports, Claude Damas, Libreville, announced that the Government is planning to build an **industrial site at Owendo Port.** Site would be located on 60-100 hectares and work would include installing electricity and water, etc. Damas estimated total cost to be $2.5-$4 million. OPIC.

☆ U.S. Government Printing Office: 1975, 582-691/26

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